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The Beattie-Smith Lectures.[1]

(UNIVERSITY OF MELBOURNE.)

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THE PREVENTION OF NERVOUS AND MENTAL DISORDERS: SOME POSSIBILITIES AND LIMITATIONS.

LECTURE II.

HAVING discussed the possibilities of prevention of causatve factors due to inheritance, brain disease and general ill-health, we may turn our attention, as is often done in practice both by lay and medical members of the community, to other possibilities; and the first is that of some form of mental strain, shock or excitement, which led up to the disorder. This often seems a promising avenue of exploration and is confidently advanced by relatives as the whole cause.

It is generally accepted that intense strain, such as bombardment or prolonged spells of duty during the Great War, played a very significant part in determining the onset of the war neuroses; and in civil life it is often found that individuals break down with a neurosis following bereavement, financial embarrassment, sickness, added responsibilities, and so forth. There is, however, generally found to be a predisposition to such a breakdown as shown by the preexisting personality and behaviour, and the strain or shock can often be regarded only as the precipitating cause.

Certain emotional strains, for example, bereavement and responsibilities, are unavoidable, and it

[1] Delivered at Melbourne on November 26 and December 1, 1936.

seems that if we are to eradicate the neurotic results of such strain, we have to direct our attention mainly to the predisposition. It does seem, however, that the growth of complexity in our social organization and the conditions of labour under which the majority of the population exist, place a rather unfair burden upon them. It seems that the strain resulting from insecurity of tenure of employment and the constant fear that the family may at any time, through no fault of their own, be plunged into the abyss of unemployment, is a potent source of nervous disorder that might well be remedied by some form of social insurance. It is always a source of wonder and admiration to me that so many can adjust themselves to this strain.

Other factors which undoubtedly place a big strain on many persons are the monotonous tasks which have to be performed in an atmosphere of ear-splitting noise in factories and workshops. It seems that some alteration of this condition might be attempted.

Amongst environmental strains must be considered the effects of having a nervous or mental patient at close quarters in the house. It seems that this factor is a possible source of error in the estimation of the importance of inheritance, for such illness of a father, mother or other relative may be a source of considerable domestic strain and a hindrance to a satisfactory development of personality.

With regard to the psychoses, the situation as regards the precipitating cause and the predisposition seems to place even greater emphasis on the predisposition, and in many cases it is difficult to point to factors in the immediate environment which have served as an exciting cause. The schizophrenic psychoses, for example, seem at times to be an inevitable drift of an unsatisfactory type of personality, and the change of mood in the cycloid to mania or melancholia may appear to be without rhyme or reason. At other times it seems that if it had not been for some environmental situation of rather exceptional strain the individual might have escaped.

Masturbation.

It is especially in the schizophrenic conditions that relatives often, after considerable hesitation, give the information that the patient has been found indulging in masturbation; and as there has been a very pronounced change in medical views in this regard, it seems that some consideration is arvisable. One has only to consult the pages of G. Stanley Hall's monumental and well-documented treatise on adolescence, published in 1904, to find tens of pages devoted to an eloquent and learned discussion of the evils attendant on this habit. He gives a long list of external causes, ranging from spring-time, "a peculiarly dangerous season", through indigestion, monotonous working and corsets, to "too great straining of the memory"; and he quotes Cohn, who pleads for an expurgated Bible and dictionary. He states that these are "the sins of the parents that are visited on their children, devitalizing, arresting their full development, and finally exterminating them", and mentions "the invective of a decadent son upon a sire but for whose private vice he might have been well born". We are, however, reassured that "the results are not so immediate or disastrous as represented in both the popular and the earlier literature. The brain is not literally drained; dementia, idiocy, palsy and sudden death are not imminent."

Apparently this process of reassurance has been continuing since he wrote, for one now finds that modern text-books hesitate to ascribe any ill-effects whatsoever, either bodily or mental, to the habit itself, though all agree that worry regarding the supposed ill-effects of this practically universal habit is responsible for a great deal of ill-health, both bodily and mental. Shameless masturbation is a sign and not a cause of mental disease.

Whatever one's views regarding the morality of the question may be, it seems to be proved to the hilt that the efforts to prevent indulgence by fearsome threats of mythical harm are worse than useless, for these fears added to the almost invariable sense of guilt which accompanies the habit, often lead to great unhappiness, incapacity and illness. Similarly, in the young, physical punishment when they are detected seems to lead to further secrecy and humiliation.

The general tendency seems to be first of all in the direction of regarding the habit as at best an unsatisfactory way of settling sexual needs, with a tendency to exaggerate certain unhealthy personality tendencies, such as introversion and inferiority, and, secondly, in believing that it is best dealt with as a rule indirectly by a healthier routine and general hygiene and directly by a commonsense recognition of the problem.

At times one meets with parents who are panic-stricken by observations that their infant child has formed the habit of sexual stimulation, and they are often frankly incredulous that such practices are practically a universal stage in childish development, but this seems to be true. As a general rule the habit is purely temporary, arising from the infant's exploration of its own body and the pleasures arising from it. If something goes wrong with the child's later general development, there may be a regression to these infantile activities. Faulty handling, by restrictive apparatus, punishment and so forth does, however, tend to fix the habit more firmly.

Sexual Education.

This leads us to the general question of sexual education—its when and how. There are still some differences of opinion as to whether one should await the child's questions or volunteer information, whether information should be given at home or at school, and so forth. It seems that individual cases may require rather different approaches, but as a general rule it seems that if the parent retains the child's confidence by a generally truthful attitude, questions regarding sex will be asked at

a very early age and should invariably be answered truthfully to such an extent as will give the child satisfaction. If this is done, one finds that the curiosity is satisfied by degrees and that the truth is regarded as just one item of knowledge amongst many, and not the dominant topic of inquiry and secret conversation that it may so readily become.

There is to my mind no doubt whatever that a very great deal of unhappiness and nervous ill-health must be traced to parents who through carelessness or false modesty leave their children in ignorance. The formal talk of an embarrassed parent to an adolescent boy or girl is generally too late to do anything but possibly correct faulty information gathered from companions. If, however, the way has been paved by correct answers to questions in earlier life with the mutual confidence that results from these, there is less embarrassment and a much more satisfactory approach to these and other problems of adolescence. There seems to be a much better attitude towards sexual information in recent years, but it is by no means unknown for a child to be stigmatized by foolish adults as rude or wicked for airing its knowledge that babies do not come from the doctor's bag or the cabbage or any other mythical place. This is surely an unpleasant relic of the past; and it is unfair that parents who are endeavouring to place their children on a satisfactory basis in this respect, should have their efforts rendered more difficult by the folly of teachers and others who should be better informed.

Lack of satisfactory sexual knowledge is undoubtedly a big handicap to many before marriage, and even afterwards we find many difficulties arising from ignorance and a faulty attitude towards sex which may lead to definite nervous and mental disorders. Once again, however, we come to the question of predisposition; for some who have apparently had a most unsatisfactory education in such matters seem to escape nervous and mental disorder.

We have seen that as a rule hereditary predisposition appears insufficient of itself to cause nervous or mental trouble, and that in many cases the immediate exciting cause seems of comparatively slight or no importance. Moreover, the patient's bodily health is often quite satisfactory.

In listening to the past histories of patients with neuroses or biogenic psychoses, it is generally found that peculiarities of thought, feeling or behaviour, that is, personality disorders, were present long before the apparent onset of the trouble. The patient's account of the very early years of life is missing, and often one can only surmise from the type of home, the family situation and the scanty information of parents and relatives what these early years were like. And yet these are undoubtedly the years when personality and character have been moulded from the raw materials of inheritance.

Early Development.

The twentieth century has been called the century of the child, and it is doubtful whether the child's thought and life have ever before been subjected to such close study as in the last few years. It has been felt that since the early years are those of most rapid development, particular attention should be given to them, if we are to ensure satisfactory development and eliminate defects.

The widespread interest in the development of the child in the very early years seems to have had its origin in many sources. The growth of the kindergarten and nursery schools, the pioneer work of Montessori, Froebel and McMillan, and the emphasis Freud placed on the development of sex in the young child, all seem to have played a part in directing the scientific interest of the present century in this direction. The emotional appeal of infants and young children has, of course, also been a very large factor, and so perhaps has been the tendency to small families which is now so prominent. Perhaps we might also mention the widespread distress and dissatisfaction resulting from the War and post-war conditions.

A tremendous amount of work has been done and a great deal of information has been collected by workers in different fields, but the mind of the child still remains to a large extent unknown territory. Our knowledge of the child's thoughts and feelings must be gained indirectly for the most part. We may gather some information from observation of the child's activity and conversation, and most of the earlier work consisted in careful observation of the child with records kept over a period of years, for example, the work of Preyer. Together with these we have systematic attempts at explanation of the facts observed by Karl Groos, Karl and Charlotte Bühler, Koffka, Piaget, William and Clara Stern, and many others.

Further knowledge comes from experimental work, especially in regard to the development of intelligence, which has been so exhaustively studied since the pioneer work of Binet.

Still another source of knowledge comes from adult recollections of childhood, though it is generally recognized that errors may readily occur in this method. It was, however, from this source that Freud was led to develop his theories of psychoanalysis, and some consideration of them seems to be well worth while, in view of the widespread interest that they have aroused and the inspiration that they have been to very many workers in all countries. From the recollections of adults, firstly under hypnosis and then by a process of free association, Freud has, step by step, built up a theory of the causation of neuroses, psychoses and character defects which places considerable importance on the development of the young child, and especially its sexual development.

The storm which raged regarding his theories during the War and the following years has not yet wholly subsided, but a great deal of the heat and bitterness seems to have evaporated. The criticism which has been directed against some aspects of his work, and especially against the arbitrary interpretation by symbols, on which so much apparently

depends, seems to me to be justified. The explanations of behaviour by some of his followers especially seem to be extremely far-fetched and proof of their correctness seems to be lacking. Nevertheless they are attempts at explanation which would bridge the gap between the inherited capacities and the predisposition to nervous and mental disease, and as such are of considerable importance. Possibly the best application of his theories to the development of the young child is that of Dr. Susan Isaacs, who interprets the findings of her observation of children in the Malting House School at Cambridge, along lines which are in the main Freudian. There is certainly no hesitation in the use of infantile sexuality, the Œdipus complex and symbolization to explain the behaviour of those who were under her charge, and yet throughout there seems to be a fund of practical common sense which rather blunts the edge of criticism.

Her advice as to principles to be adopted in child management seems worth summarizing and mention, for it is in this respect that we find the neurotic and psychotic so often at fault.

We should, it seems, realize that difficulties in development are not due to an absence of guilt, but to a deep-seated anxiety, and therefore love and security are required in a stable environment. Harsh treatment is useless and harmful, but the child does not require absolute freedom. Rather than this, firmness, stability and mildness in its elders are needed.

In play we find material for the working out by the child of its emotional problems and difficulties. This gives mental ease, but it is essential that we have knowledge of the child's needs at different ages. We must have respect for the child's individuality and not unnecessarily impose our own prejudices. The importance of companionship is stressed, and the gradual development of active cooperation from the initial passive interest in others is described. Lastly, it is necessary to evaluate some childish acts, such as masturbation and exhibitionism, as normal events in development.

In the advice as to the management of the problems which occur in weaning, thumb-sucking, the development of cleanliness, temper tantrums and screaming, we find that their importance for later development is stressed and commonsense methods are recommended.

It is only when we come to the discussion of the phantasy life of the child that there seems to be some strain placed upon our common sense; but attempts to enter the mental life of the child at a time when phantasy and reality intermingle must tend to speculation.

Time does not permit of a detailed discussion of the theories of sexual development through oral, anal and phallic stages, nor yet of the complicated relationship of the child to its parents with the strong ambivalent tendencies which arise; but the practical importance of any theories which will serve as pegs on which to hang the observations of clinical experience is undoubted. Psychiatric and ordinary social experience shows very clearly that many individuals are handicapped by a fixation of interest at some stage short of normal adult standards, and the difficulties that arise from undue attachments to parents and family which have been broken by bereavement and separation are very frequent.

Neither is there time to discuss in detail other schools of thought regarding the development of personality, but the work of Montessori, which showed how children might be literally transformed in her "children's homes" is well worthy of mention. It seems that her emphasis on the more intellectual achievements and on the use of rather standardized equipment, which will serve as a stimulus in this direction, is of particular value with dull and retarded children. It seems, however, that there may be a lack of stimulus to the social development which is so desirable and is stressed by Susan Isaacs. Some words of Montessori seem well worth quotation:

> If the most visible ills affecting adult man, physical disease, and nervous and mental disease, can really be traced to childhood, it is the life of the child that can show us the details, the first signs and causes that will accompany such evils step by step.

Moreover,

> if illness is the sign of weakness that has not been able to resist assault, there must be many who are weak even if they have not remained a prey to disease.

Throughout the field of nervous and mental disorders there are to be found characteristics that have their counterpart in the life of childhood. We find childish attitudes of self-centredness, marked ambivalence of emotion, a life of phantasy which has assumed a semblance of reality, deceptions of the senses so that reality is distorted, and the marked suggestibility that is such a feature of childhood, to mention only a few. It certainly seems that a strong case can be brought forward to prove that a failure to develop from and a regression to the characteristics of childhood are important factors in these forms of illness.

Surely it is possible to discover from the observation of the development of the children with whom we come in contact the facts of this development and the experiences and situations which will give stimulus or inhibition to the tendencies present. Possibly Montessori is right when she speaks of the "sensitive periods" during development, which are like transitory instincts, to be made use of before they pass away, or else the individual is left maimed and halt in this respect. Possibly the psychoanalysts are right when they trace certain adult characteristics to difficulties experienced in weaning or the enforcement of rigid adult standards of cleanliness regarding bowels and bladder at too early an age. Possibly both are at fault and the truth is yet to be discovered, but it certainly seems that in the investigation of the life of the child lies

the main hope for the prevention of adult nervous and mental disorders.

It seems that in spite of much ignorance there is agreement at the present time on such principles as the need for companionship, for occupation fitted to the child's needs, for freedom from constant adult interference, for adult understanding, and so forth. When we consider how these needs can be satisfied we come up against some hard facts. For example, in the average home children are so spaced that companionship with children of approximately their own age cannot be obtained in the family circle. Means of occupation are often lacking, either through poverty, ignorance, or carelessness. The older ideas of childish behaviour, that "children should be seen and not heard", that untidiness is shameful, that a starched white frock is an ideal costume for a young child, and so on, persist to the present day. Moreover, the rush of life at the present day seems to offer little time for the parents to observe and help their children, and seems to demand some sheltered spots where even the toddler can have leisure to develop his own personality.

Nursery Schools.

It does seem that the solution of many of our difficulties in this regard lies in the future expansion of the nursery school and kindergarten movements. This will demand a better education of parents and others to the benefits resulting, and even more perhaps the education of more young women to take places for a few years at least as leaders or helpers in a nursery school.

In spite of considerable publicity, there still seems to be great ignorance as to what nursery schools and kindergartens attempt to do, and the way in which children react to the atmosphere they create.

So often one hears cries of dismay from parents and others at the suggestion that a child of two or three should go to school. It is regarded as cruel to force the young mind into the educational machine at such an early age, and parental memories of hard seats, long hours, uninteresting lessons, corporal punishment, being kept in, and so forth, all seem to be revived with great clarity and intensity. Sometimes the objections seem to have origins in parental possessiveness and a great unwillingness to lose touch with the young child for even two or three hours a day. Possibly parental pride also plays a part and becomes outraged at the suggestion that a child may be happier with other children and strange adults than at home.

The best answer to these difficulties is to advise parents to see for themselves; but perhaps something may be done to give some indication of what a nursery school really means. This has been well done by a paper issued by the Victorian Demonstration Nursery School Committee. Some extracts from this may be given:

> Nursery schools have arisen as a means of dealing with the effects on the young child's development of the changed social conditions of modern times. Modern society largely exists in great cities and their suburbs, in which the needs of communal life are not supplied for the young child. In bygone days he had his place as a matter of course in the communal activities of the family unit as part of town or village life.
>
> Nursery schools are for children from approximately eighteen months to three years of age. They bridge the gap, probably the most important period in the development of the individual, between babyhood, when they are under the skilled supervision of the baby health centres, and the kindergarten stage.
>
> At a nursery school the child learns self-reliance, good physical habits and self-discipline. A social sense is developed; he learns to play happily with other children and to cooperate with them; all in a happy, bright, well-ordered atmosphere suited to his needs and his age, with regular rest periods, nourishing, well-planned meals, and a routine which teaches him the general rules of health. He has the choice of a large number of playthings, all carefully designed to develop manipulative skill, judgement, balance, muscle control, colour sense, accuracy, rhythm *et cetera*. Adults do not intrude, but the child is constantly under trained observation, and a detailed day-to-day record is kept of his physical, mental, social and emotional development.
>
> Not a small part of the usefulness of the nursery school consists in the help it gives to parents, who eagerly follow its advice and example, not only in matters of diet, rest, routine, and control over behaviour and habits, but in their own relations with the child, and in trying to provide a suitable, stable and not-too-exciting home environment, which, of course, remains of paramount importance in his life. The brief period of separation brings the child back to the mother refreshed and happy, and the mother all the more appreciative of his companionship for having had a few hours free from interruption for her own work.
>
> A great deal has been done already in Melbourne to spread the idea of nursery schools, but far more remains to be done if the benefits of such a movement are to be felt, as they should, and with this end in view it is hoped to popularize the study of the principles of nursery school work so that all who have undertaken the care of small children can be helped to understand and guide their development.

Nursery school principles do not need a large institution before they can be put into practice, for quite useful work with a group of very young children can be done in the ordinary home with a veranda, garden, and a variety of assorted and, for the most part, inexpensive play materials. Some knowledge of the requirements of the young child's mind and sympathy with its endeavours are, however, necessary for the person in charge. The atmosphere of happy play that surrounds the nursery school has to be seen to be properly appreciated.

The greater part of my own experience of nursery schools comes from the guidance nursery for behaviour problems in connexion with the psychiatric clinic at the Children's Hospital, and this experience has been of considerable interest. Although it touches only the outer fringe of the problem, and that in a rather limited way, owing to difficulties such as transport, we have nevertheless seen some amazing transformations, and it is my firm belief that a very great deal can be done in this way to rectify disorders of development and to prevent adult troubles.

Most of the work in nursery schools has been done in the poorer neighbourhoods; but it seems that there is scope for great improvement in the way in which the children in better neighbourhoods spend their days. A great deal of apparent ignorance and

carelessness of the mental and physical needs of the very young child undoubtedly exists in these regions. Owing to these factors, many warped and unsatisfactory personalities develop, even in homes where expense is no great consideration.

There is little exact knowledge as to the characteristics of the very young child which point to a predisposition to nervous or mental troubles in later life; but it seems that some of those which give most trouble to parents and others are of less significance in this respect than others which are not so troublesome.

Such tendencies as that towards isolation from other children and persistent lack of cooperation with them, or those of making a personal grievance out of petty disturbances, are probably of more importance than temper tantrums, untidiness and so forth. It may also be stated that too much pliancy to adult wishes, over-conscientiousness and a lack of assertiveness with children and adults are also signs of a faulty development that may be passed over with praise for the child's goodness. Persistent faulty childish habits, such as thumb-sucking and masturbation, wetting and soiling clothes and bedding, may be signs of faulty development; and so may be childish fears, night terrors, persistent constipation, refusal of food, and many others.

It is not, of course, suggested that children who pass through phases showing some of these difficulties are doomed to adult troubles, but it seems that if these phases are persistent they should be regarded as signs that all is not well. The significance of isolated symptoms can be estimated only by a survey of the whole of the child's development and characteristics, and even then errors due to lack of knowledge are likely to occur at the present time.

It may seem absurd to suggest attendance at a nursery school for such troubles as bed-wetting, stammering and so forth, but experience here and elsewhere shows that they may be markedly influenced by the occupations and interests of such an institution.

There is no doubt that personalities vary tremendously even at the nursery school age, and it is to be hoped that future research into the later lives of children who have shown peculiarities at this age will give much needed indications as to the potentially dangerous types of personality. The type of personality appears to vary with the environment to a degree which is inversely proportional to the age of the individual, and it is believed that personality tendencies can be greatly modified at nursery school age, whereas later they become much more fixed.

To what extent the differences of personality existing at eighteen months are due to inherited characteristics or to environmental agencies which have aided or retarded growth, also requires considerable future investigation. It seems that even in the handling of infants of a few months there may be factors, such as the management of weaning, attention to bowels and bladder, types of clothing, and so forth, which can have some influence on future development. Once again there is need for future investigation in these respects, and this will require the cooperation of infant nurses, in baby health centres, hospitals and homes.

Some importance has been placed, for example by Alfred Adler, on the position which the child has in the family for the determination of adult personalities, and there do seem to be especial difficulties in the path of the eldest, youngest, and only or isolated child. These difficulties arise partly from the attitudes of the parents and other children in the family, and also to some extent from the lack of companions of the child's own age. Understanding of the difficulties by parents and others and outside companionship should go far to rectify these difficulties.

It is impossible to deal with all the possibilities of faulty development, but the importance of the bodily health and efficiency of the child should be mentioned. Such defects as faulty eyesight or hearing, a faulty heart, infected tonsils, and so forth, all place the child at a considerable disadvantage and may be responsible for attitudes of inferiority and isolation in later life. Correction of these, if possible, and care to arrange the environment so that too much is not required, are called for. It is, however, important to see that sickness and ill-health do not bring about an attitude of invalidism and too great a realization of the privileges that may be obtained through sickness. In adult neurotics one finds a tendency towards a "flight to illness" when they are confronted with difficulties, and attempts should be made to see that this is not inculcated in the mind of the child.

It is often found that the child who finds school work difficult, owing to a defect in general intelligence, special disabilities or sensory defects, is prone to seek freedom through ill-health, and some modification of the school work may be advisable.

The change in the school curriculum in recent years has undoubtedly been of considerable benefit in making learning more interesting, and is, it seems, going to have a satisfactory effect on future adults, but a great deal remains to be done, especially in regard to the provision of grades of work suitable for varying degrees of intelligence.

It seems that, as a result of discouragement due to repeated failure, intellectual subnormality of mild degree becomes, in many cases, overlaid with loss of interest and attention and a general inhibition of effort. This may be a factor in the causation of future nervous and mental ill-health and behaviour problems, such as delinquency, and should be preventible to a greater extent than at present, when very few facilities for special attention to these children exist.

It will be seen that the possibilities of the prevention of nervous and mental disorder cover very wide fields and that the cooperation of many interests

will be required if they are to become actualities. Education as to these possibilities will be required by our parliamentarians, clergy, nurses, philanthropists, educationists, parents, and, last to be mentioned, but not least, the medical man.

Conclusion.

If these lectures have served to arouse interest as to these possibilities, and if they in any way lead to their further investigation and application, I feel that the wish of the founder of these lectures, Dr. Beattie-Smith, will to some extent have been fulfilled.

I would once more express my thanks to the University of Melbourne for the privilege of being appointed lecturer for this year, and to those who have been listeners to my addresses.

METROPOLITAN AND RURAL INCIDENCE AND DISTRIBUTION OF ACUTE RHEUMATISM AND RHEUMATIC HEART DISEASE IN NEW SOUTH WALES.

By Kempson Maddox, M.D. (Sydney), M.R.C.P. (London),
Marion Clare Reddall Scholar, University of Sydney, 1935-1936.
(From the Department of Medicine, University of Sydney.)

Part II.

Distribution of Rheumatic Heart Disease in Rural New South Wales.

Approximately 350,000 children attend the State schools of New South Wales. The well-organized School Medical Service provides for the routine medical examination of each child approximately once every three years. In 1929, 42,525 country State school children were examined, and 4,324 of those attending non-State schools. A reduction in the medical staff performing this work resulted in the total examinations during 1930 becoming reduced to 28,206; in 1931, to 11,822; while in 1934, 13,518 country children came under review. These children attend country high schools (which cater for children between the ages of twelve and seventeen), large country State schools, small country State schools or aboriginal schools.

It will be observed that a certain proportion of each group has annually been "notified for heart conditions" (*vide* Part I). This means that in the examination of the heart some abnormality was found about which the school medical officer felt the parents should be informed. While unquestionably the majority of these children were suffering from rheumatic heart disease, the parents would also be advised of congenital heart disease and even of any suspicious features of organic damage that were discovered. These figures, therefore, do not necessarily provide an index of the true incidence of rheumatic heart disease, but form a reasonable approximation only. Such results are, however, sufficient for the Department's purposes, and no further analyses of ætiology, geographical incidence *et cetera* are prepared as a routine measure. Since this information was required in the present instance, and could be obtained only by a perusal of each child's medical examination card, it became necessary, in order to gain some idea of the total incidence of rheumatic heart lesions in the country school community, to peruse approximately 63,000 cards, drawn from all parts of the State and from State and non-State schools, 374 in number, representative of both sexes, and scattered over the years 1929 to 1934. These cards contain details of illnesses already suffered by the child, which are copied by the teacher from a card filled in by the parents. Cards are stocked in bundles according to schools, so that results can be tabulated on a regional basis. In each school examined observation was made of the relative number of boys and girls; of the number of children with valvular heart disease having the clinical characteristics of rheumatic endocarditis; of those giving a history of rheumatic fever or rheumatism, but in whom no heart lesion could be detected; of those having had chorea with or without consequent heart damage; and, finally, of those who presented signs of former rheumatic endocarditis, but in whom no history of rheumatism was recorded. An inquiry along these lines is open to several obvious criticisms. In the first place the parent may have described any ache or growing pain as "rheumatism", but in the majority the words "rheumatic fever" were added by the parent or the examiner. The record of "growing pains" in the past history was so frequent as to suggest that little relationship to cardiac rheumatism exists in this symptom. Secondly, the examiner's attention at the time was not concentrated specifically upon the heart any more than upon any other organ, except, of course, when the history of rheumatic fever had been supplied by the parent. It is considered unlikely, however, that in spite of having many children to examine in a limited time, the medical officer would fail to notice the loud bruit which is common with fully established rheumatic heart disease.

The School Medical Service, therefore, does provide one means of estimating the incidence of rheumatic infection in large numbers of children in much simpler and more consistent fashion than the replies to *questionnaires* issued to a great variety of doctors and hospitals. It was considered that if sufficient numbers were collected, our deductions would be fairly sound.

Results.

The general incidence of rheumatism for all rural areas examined was 2·7%; of organic heart disease of rheumatic character, 0·6%. A complete *résumé* of the detailed figures appears in Table I, while the distribution among the larger schools (at least 100 children examined) has also been investigated.

TABLE I.

Distribution of Rheumatism, Chorea, and Rheumatic Heart Disease in New South Wales Districts.

Total Rheumatism per 1,000.	Division.	District Total Heart Diseases per 1,000.	Boys.	Girls.	Total.	Rheumatism.				Chorea.				Organic Heart Disease. No History of Rheumatism	
						Heart Affected.		Heart Unaffected.		Heart Affected.		Heart Unaffected.			
						Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
29·0	Far West	2·0	1,129	997	2,126	2	—	21	28	—	—	3	5	1	1
18·0	North-West Plains	2·0	721	664	1,385	—	1	11	11	—	—	—	—	1	1
27·0	Central West Plains ..	3·0	1,179	1,178	2,357	—	1	28	24	—	—	2	3	3	3
24·0	Riverina	6·0	3,812	3,531	7,343	5	6	61	63	1	1	5	5	16	15
24·0	North-West Slopes	3·4	1,528	1,375	2,903	4	3	26	30	—	—	3	—	2	1
33·0	Central West Slopes ..	11·0	2,420	2,452	4,872	15	8	48	57	—	2	—	2	15	14
30·0	South-West Slopes	6·4	1,602	1,664	3,266	4	3	34	32	—	2	4	6	5	7
38·0	Northern Tablelands ..	5·1	1,158	1,189	2,347	2	4	39	36	—	—	1	1	2	4
34·5	Central Tablelands	6·6	3,197	2,673	5,870	13	9	77	73	1	—	10	5	4	12
24·0	Southern Tablelands ..	3·4	1,862	1,636	3,498	3	4	33	34	—	2	4	—	1	2
19·5	North Coast	3·5	3,836	3,826	7,662	3	2	52	51	1	—	8	5	10	11
29·0	Hunter and Manning ..	10·0	1,765	1,770	3,535	7	6	37	27	1	1	3	—	11	10
25·0	Hunter and Manning (small schools)	8·0	576	507	1,083	—	—	11	8	—	—	—	—	4	4
25·0	Northern Coalfields	6·0	3,583	3,366	6,949	9	6	50	58	1	2	11	12	13	10
25·0	South Coast	6·0	2,816	2,858	5,674	4	9	44	59	1	—	4	3	8	11
45·0	Lithgow	15·0	1,083	1,038	2,121	5	8	23	40	3	1	—	2	8	6
	Total State		32,267	30,724	62,991	78	70	595	637	9	11	59	48	104	112
	Total heart disease rate per 1,000 .. 6·0		189	193	382										
	Total rheumatic .. 27·3		843	878	1,721										
	Total chorea .. .. 0·5		68	59	127										

Relevant geographical notes follow according to the statistical subdivision usually adopted by geographer and meteorologist for New South Wales. Such areas are large, and frequently many degrees of difference in altitude, rainfall and settlement occur in the same division. Reference to Map II shows that the incidence of cardiac rheumatism varies little within these boundaries on the West, North and South Coasts; it varies a little more in the Riverina, on the North-West Slopes, in the Hunter and Manning districts, on the Central Tablelands and Central Western Slopes.

North Coast.—The climate on the North Coast is hot and wet in summer and warm in winter. It has, in some quarters, been regarded as a fruitful source of cardiac rheumatism. The present analysis would appear to contradict this view. The average incidence for the twenty towns examined was 19·5 "rheumatic" children per 1,000 examined, and 3·5‰ were the subjects of cardiac lesions. The section near the coast lying between 29° and 31° south latitude includes some of the rainiest areas of the State, the rainfall varying from 50 to 70 inches annually. The North Coast statistical division contains two distinct types of country: a very narrow coastal plain, with a number of lagoons and estuaries and with regions of low ground extending inland along the river flats, and a highland area of deeply dissected country which forms the margin of the Northern Tableland. The region is crossed by a number of short, swiftly-flowing rivers. The towns considered lie on the flats near these rivers and are not more than 50 feet above sea-level. The population is distributed in a number of small towns and on scattered farms.

Hunter and Manning.—The Hunter and Manning region, named after its two main streams, varies in altitude from a few feet above sea-level in the Hunter valley to 5,000 feet in the heights. It is well watered and readily flooded. It extends well back from the coast, and includes urban and coalfield areas in and around Newcastle. The average incidence of "rheumatism" is 27‰; of rheumatic heart disease, 9‰. The rainfall varies from 20 to 60 inches a year, increasing towards the sea. Organic heart disease appeared in higher concentration in a small coastal area marked by large salt lagoons at Woy Woy, Wyong and Gosford than in any other part of the State. Ground damp here is probably considerable, and houses are weatherboard, without proper damp-courses; but whether this is important it is difficult to decide, as many other coastal resorts are similarly situated and the dwellings similarly constructed.

South Coast.—The South Coast region contains the coastal plain, river-flats and the dissected margin of the Southern Tablelands, giving topographic forms similar to those found on the North Coast. However, the river flats are fewer in number than on the North Coast, and in the southern part of the South Coast the proximity of the high ground to the sea and this relative absence of riverine plains have resulted in a sparser population than in the corresponding region of the North Coast. The northern coastal part of this region (the Illawarra coastal plain) is relatively densely populated, owing to the development of mining communities in the vicinity of the coal seams and to the greater width of the coastal plain, offering facilities for dairy farming. The South Coast lies in a colder latitude (35° to 37° south) than the North Coast. The

average annual rainfall in the South Coast district (30 to 50 inches in the region bordering the coast) is less than that on the North Coast.

The incidence of rheumatism, 25‰, is somewhat greater than that of the northern coastline, as is the average incidence of organic heart disease, namely, 6‰.

The Northern Tablelands.—The Northern Tablelands are of considerable altitude and form the northernmost section of the belt of plateau land (rising in places to 5,000 feet) adjoining the coastal strip. With the exception of Uralla, the general incidence of organic rheumatic heart disease is approximately 5‰; that of rheumatism is below 35‰. The country is undulating and there is a wide difference between summer and winter temperatures. Towns are larger than on the slopes. Outside the towns are large pastoral holdings, and the population is relatively scattered.

The Central and Southern Tablelands.—The Central and Southern Tablelands are elevated areas from 2,000 to 3,000 feet above sea-level—cold and often misty in winter, but exposed to dry cold winds at the change of the seasons. The Central Tableland showed an incidence of 34·5‰ "rheumatic" children, the Southern 24‰, while the incidence of carditis was 6·6‰ and 3·4‰ respectively.

The Western Slopes.—The Western Slopes form the foothills of the tableland area and are an undulating region. The Southern and Central Western Slopes receive sufficient rainfall for both agricultural and pastoral activities. A large number of towns (for example Cootamundra, 5,000 people) are to be found. The North-Western Slopes lie in a region of lower rainfall and contain fewer people than either the Southern or Central Western Slopes. The average incidence of cardiac rheumatism, 6·9‰, for this belt of the State (which runs due north and south and has a variety of climate and contour) is higher than for any other such subdivision, owing mainly to the frequency of the disorder in the Central Western Slopes (rheumatism 33‰, organic heart disease 11‰).

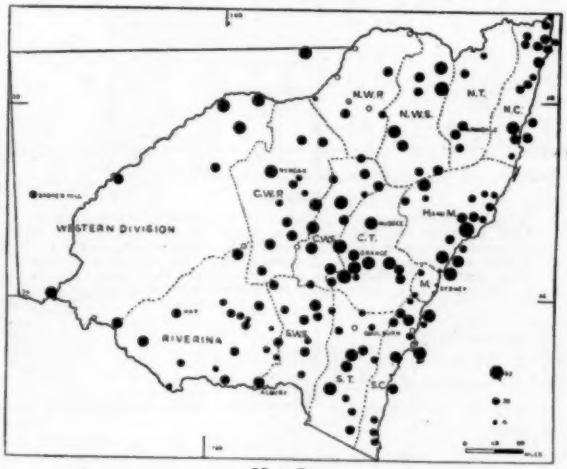
The Riverina.—The Riverina is a region of gently undulating country forming the southernmost division of the Central Plains region. The rainfall is less than on the Western Slopes. The Riverina is a rich pastoral and agricultural district. The augmentation of the rainfall by irrigation in the Murrumbidgee Irrigation Area has assisted the agricultural development of this region. The average incidence of organic heart disease was found to be 6‰; of rheumatism, 24‰. It is a well-watered, rich district, undulating in character, covering several degrees of longitude, and consisting mainly of large pastoral holdings.

The Western Division.—The Western Division flattens gradually from the slopes. This region is dry and sparsely populated, an area of dust storms and waterholes, with occasional floods, so that the rare heavy rains are as much a curse as a blessing. Here rheumatic manifestations were found to be at their lowest (2 per 1,000 instances of heart disease and 29 "rheumatic" children per 1,000).

Relationships Studied.

In an attempt to detect any geographical reasons for the higher incidence in the Central Western Slopes and adjacent areas in the Central Western Tablelands and Riverina, the following relationships have been studied:

1. (*a*) Altitude and physical features (Map IIIA, Charts I and II). (*b*) Landform regions (Map IIIB).
2. (*a*) Mean annual rainfall (Map IV, Chart III). (*b*) Seasonal incidence of rainfall.
3. Latitude and longitude (Map II and Chart IV).
4. Concentration of population (Map V).
5. Mean annual hours of sunshine.
6. Mean annual relative humidity.
7. Mean annual extremes of temperature.



Map I.
Proportional dot representation of distribution of rheumatism amongst school children in New South Wales.

Without discussing these in detail, it may be stated at once that no further relationships between the incidence of a history of rheumatism or the presence of established cardiac damage and the above geographical and meteorological criteria could be established, beyond the association noted in Map IIIB between rheumatic heart disease and undulating foothill country. A further correlation has been suggested by Professor Macdonald Holmes, of the University of Sydney, namely, that in Map II (Part II) the larger spots occur below the line of division between the maximum summer and winter rainfalls, indicating an association between areas in which rheumatic heart disease occurs and those receiving the maximum rainfall during the colder months. A map incorporating the latest meteorological data is in course of preparation in the Department of Geography, University of Sydney, and when available will be compared with the present findings.

General Conclusions.

If overcrowding were of great importance in the provision of suitable soil for rheumatism to establish itself upon, it would be anticipated that the incidence of the disease might be lower among children living in outback settlements and homes, who rarely enter a large town or school. Good

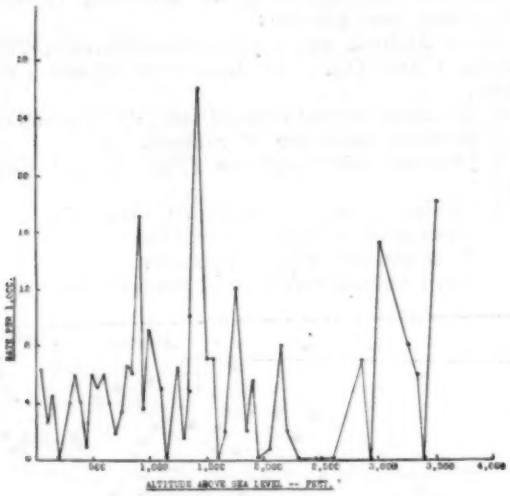


CHART I.

Graph illustrating relationship of rheumatic heart disease and altitude throughout New South Wales. There is a decreased rather than an increased incidence along the lower altitudes. It is apparent that no proper correlation exists between the occurrence of rheumatic heart disease in a town and its height above sea-level.

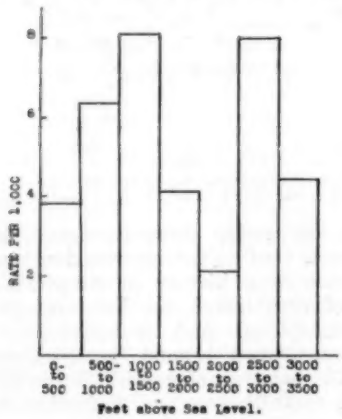
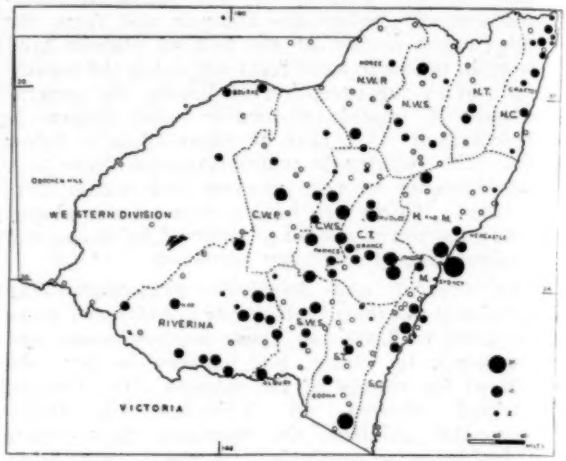


CHART II.

Graph illustrating relationship of rheumatic heart disease and altitude throughout New South Wales. There is a decreased rather than an increased incidence along the lower altitudes. It is apparent that no proper correlation exists between the occurrence of rheumatic heart disease in a town and its height above sea-level.

food, containing abundant vitamins, is more or less universal, except in the Far West; at least it contrasts very favourably with that consumed by slum children in large European cities, or even in our own metropolitan areas. Certain statistics published by the Department of Education, New South Wales, are interesting in this regard (Part I), showing that the country children in this State are slightly better off physically than those of the towns. No survey has as yet been made to demonstrate by the Dick test any difference in strepto-



MAP II.

Proportional dot representation of distribution of rheumatic heart disease amongst school children in New South Wales.

coccal immunity. This inquiry is a form of biological survey of the same soil, if it is accepted that acute rheumatism is a streptococcal disease of constant virulence, which, however, is doubtful.

TABLE II.

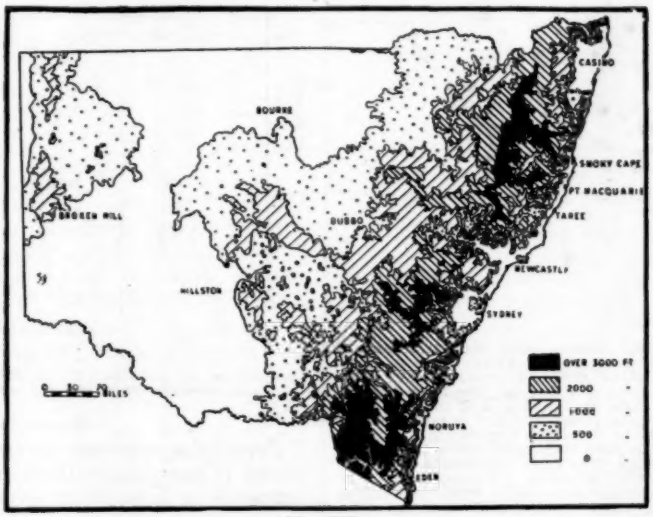
Incidence of Rheumatism and Rheumatic Heart Disease per 1,000 Children Examined in New South Wales Sub-divisions.

Group.	Heart Lesion per 1,000.	Rheumatism per 1,000.	Examined.
Far West	2·0	29·0	2,126
Plains	4·8	24·3	11,085
Slopes	7·7	29·6	11,041
Tablelands	6·8	34·9	13,836
Coast	5·8	23·9	24,903
North	3·6	23·2	14,297
Central	8·1	32·0	26,787
South	5·6	25·3	19,781
Male	5·85	26·1	32,267
Female	6·3	28·6	30,724
General average of all country districts	6·0	27·3	62,991
Central Slopes and Tablelands..	9·6	35·8	12,863
Central Slopes and Tablelands *plus* central part of South-West Slopes and Riverina ..	9·1	33·4	16,837

The results show little which can permit of dogmatism. In a general way a correlation exists between established cardiac rheumatism and rheumatic complaints as described by parents as a whole. The general incidence of rheumatic heart disease in school children for all country districts outside Sydney is 6‰. This includes metropolitan areas outside that of Sydney, but the rate of occurrence in these areas is too close to the general average to affect the figure, except in the case of Lithgow, where the incidence is 15‰. Excluding this town and its environs, the average falls to 5·4 per 1,000 children examined.

The Far West and adjacent subdivisions contain the smallest percentage of school children with rheumatic heart disease. Though heavy floods can occur in this region and convert the country for the time being into muddy flats, the annual rainfall is least here, and the usual condition is that of a dusty plain. Urbanization, at Broken Hill (population 27,000) for example, has not caused the disease to appear. At Moree, thermal baths already exist for the treatment of chronic rheumatic disease, and this territory would appear to be also suitable for convalescence from the cardiac affection. Another area which, in view of the low indigenous incidence of the disease, suggests itself as an appropriate and much more accessible site for a recovery home, is the district of Robertson, Bowral, Picton and Moss Vale. The Goulburn-Yass area, with a cold winter temperature and a moderate rainfall, is also singularly free from cardiac rheumatism. The contrast is striking between the high proportion of heart cases in the Cooerwull-Lithgow mining district on one hand and the Northern and South Coast mining areas on the other. The difference is probably related to the very diverse meteorological conditions which distinguish the two, but a nutritional factor may also exist. The sudden jump from a cardiac rate of 3‰ in the North-West Slopes to 11‰ in the Central West Slopes is noteworthy, but hard to explain. The high figure for the Hunter and Manning district is not representative of the true average, but is artificially raised by the inclusion of the apparent remarkable frequency of the disease in the Gosford-Wyong district.

As already explained, much less discrepancy exists in the various rates for "rheumatism" as a whole, as can be seen from the closer uniformity of the proportional dots on Map I. In general, there appears to be scant relationship between the incidence of rheumatism and that of organic heart disease in the same district. Lithgow also appears to contain the greatest number of children alleged to have had rheumatism, namely, 45‰. The Northern Tableland, noted for winter cold, comes next with 38‰, but has below the average number of school children with rheumatic carditis. The Central Western Slopes and Central Tablelands come next, the former with its high incidence of valvular disease, as already noted. The remaining districts average, except one, between 24‰ and 30‰, the exception being the North-West Plains (18‰), where the rate for cardiac rheumatism is least. The average for the area embracing Wyong, Gosford and Woy Woy is 44‰. As is seen in Table II, the Tablelands contain most of the rheumatically disposed children, the Coast the least. The rate for both series of figures is slightly higher in the girls (6‰) as compared with the boys (5·85‰).



MAP IIIA.

Relief map of New South Wales, for comparison with spot maps of rheumatic disease. (Block kindly lent by Professor Macdonald Holmes.)

Comparison with Other Countries and Climates.

The relationship of rheumatic heart disease to geographical and meteorological data has been most studied in Great Britain and the United States of America. Sir Arthur Newsholme found that the disease in Europe was an epidemic affecting temperate climates, occurring most frequently in the first quarter of the year, and urban in distribution. Association with winter damp and cold is traditional, even in the lay mind. Young found the rheumatic mortality rate to be highest in colder and wetter countries. Yet in Holland, with a severe winter and great damp, there is a strangely low incidence of cardiac rheumatism. Poynton and Schlesinger consider that damp and cold exert their effects indirectly only, by lowering resistance in general. Presumably if other factors exist which raise resistance, these effects may become negligible. In England the rate is high for London, Birmingham, Nottingham, Cardiff and Bristol, reaching its lowest figure in Cornwall. The British Isles are subjected, however, to much the same climate throughout, as compared with the variation in an area extending over the latitudes covered by New South Wales. In

England, spells of wet weather in summer go with a later fall, and a dry summer with a rise in the incidence of the disease (British Medical Association Report, 1926). In New South Wales, in the well-known drought areas, for example the Far West, the incidence is low; but, of course, no real comparison here is justifiable. Seegal, Seegal and Jost have shown that the incidence lessens progressively from north to south in the United States of America and Canada, from latitude 50° to 45°

MAP IIIB.

Correlation of rheumatic heart disease with landform region. Map shows the different landform regions which occur in New South Wales. There are three different groups, shown as *A*, *B*, *C* on the map. *A* represents the flat low-lying plains, *C* the plateaux regions, and *B* the foothill zones of the plateaux. These regions, *A*, *B*, *C*, have been further subdivided as follows. *A*1: Regions of level or gently undulating country discontinuous along the coast and extending along the river courses. On the seaward slope there are frequently areas of sand-dunes and extensive mud swamps. Lagoons enclosed behind sand spits are typical of the coastal strip. *A*2: The Sydney-Penrith plain has a gently undulating surface. The plain is surrounded on all sides by steeply rising slopes, either in the form of scarps or in a series of foothills. *A*3: In the western plain of New South Wales are found extensive areas of extremely flat land; the general low-lying and flat country is broken by regions of higher land in which there are rare and jagged peaks (*B*1). *B*2 represents the undulating foothill country on the western margins of the New England southern plateau. This foothill zone extends some distance to the eastward in the Canberra-Goulburn region and near Bathurst. *B*3: These regions occur in the central margins of the New England and southern plateaux and are a continuation eastward of these plateaux in a deeply dissected form. *C*1 is the Blue Mountain region of New South Wales. It is a region of flat-topped land, deeply dissected by streams whose valleys are wide and deep with vertical walls and gradual slopes below these walls. *C*2 is an undulating highland area. It will be seen that the area *B*2 includes the highest concentration and consists of undulating foothill country (see above).

north to latitude 34° to 35° south, and that a similar decrease occurs in hospital admissions for scarlet fever. Cooper has recorded a similar decrease in hospital case incidence proceeding from North to South Australia. While this may be true for the continent as a whole, a close examination of the children of New South Wales, however, shows that the incidence of the disease is highest in the central area of this State. He also draws attention to the relatively common occurrence of acute rheumatism in tropical Australia. Clarke has stoutly defended his contention that the disease does not occur in the tropics of the world; but there is no question that, though much rarer in the tropics, the disease does occur. No part of New South Wales is, however, within the "Tropical Zone" referred to by Dr. Clarke. Poynton and Schlesinger state that high dry lands with much temperature change favour rheumatic fever. The disease is said to be frequent in Egypt, South Africa, Bavaria and Mexico. This type of climate is that found in the Central Western Slopes and Tablelands of New South Wales.

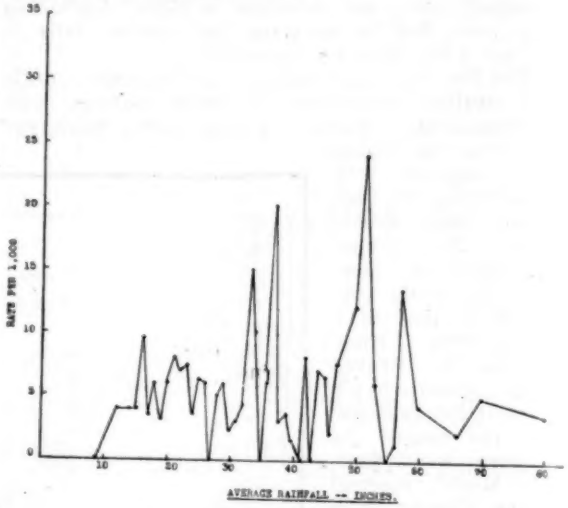


CHART III.

Comparison of distribution of rheumatic heart disease with average rainfall. No correlation observed.

Conclusions.

From our present investigation we have not found it possible to throw any fresh light on the influence of climate in general upon rheumatism.

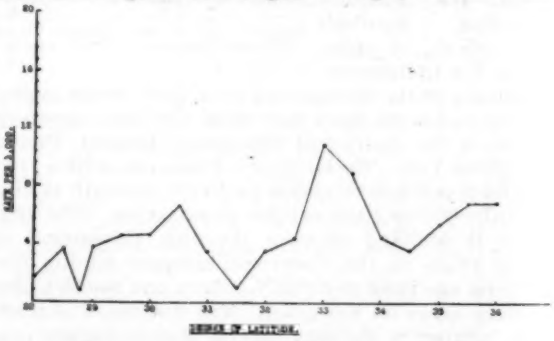


CHART IV.

The curve takes a gradual rise from north to south, but reaches its actual peak in the neighbourhood of 33° S.

The following conclusions, nevertheless, seem justified as regards New South Wales:

1. Rheumatism is distributed fairly evenly over New South Wales, whilst rheumatic heart disease is found more on the tablelands and slopes than in the coastal regions..

2. In the coastal mountain range (Blue Mountains) and the areas close to its inland slopes

there is a higher incidence of organic cardiac rheumatism.

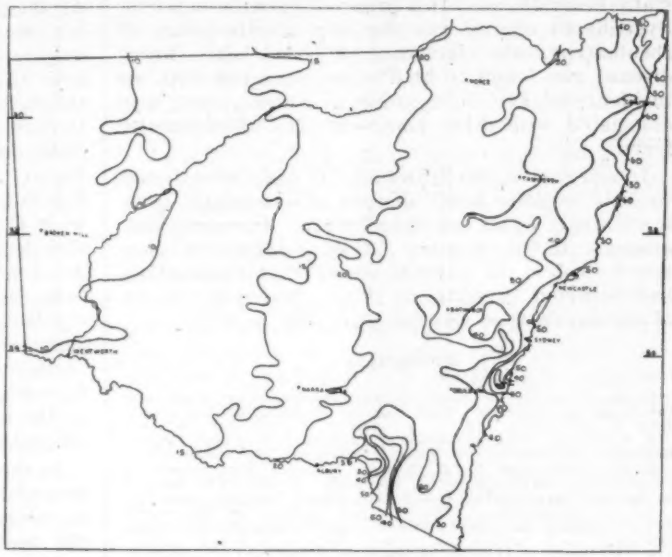
3. Certain coastal areas characterized by salt-water lagoons are severely affected.

4. In dusty areas with low annual rainfall of high seasonal concentration, and with high summer temperatures, the incidence is low.

5. Urbanization in New South Wales, at least with one possible exception (Lithgow), does not appear to raise the incidence of cardiac rheumatism.

6. No increase is found in areas under close artificial irrigation and of high ground damp (Yanco, Leeton). Similarly, flat coastal areas abundantly intersected by rivers and with a very high rainfall are more than usually free of cardiac rheumatism.

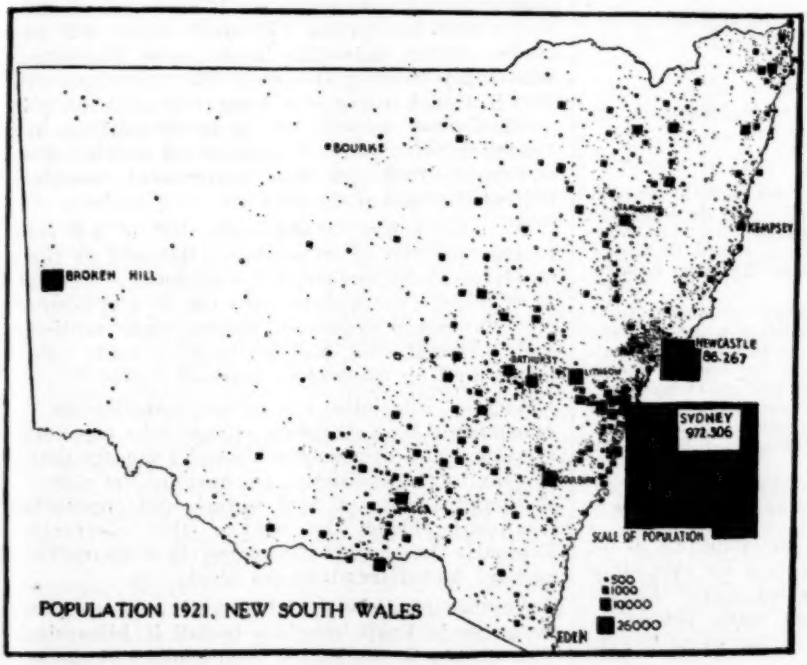
The remaining geographical criteria employed give results of negative value only, and may perhaps be of use from this angle.



MAP IV.

Average rainfall in New South Wales. Figures are inches per year.

In the course of examining this large number of cards, amounting to 62,991, certain general clinical impressions were formed of which no exact numerical record was undertaken. Aortic valvular disease was virtually absent. Growing pains and sore throats were relatively common in the children examined; a history of tonsillectomy was fairly rare; scarlet fever was distinctly uncommon as a predecessor to cardiac rheumatism; the association of chorea and rheumatic fever was also most uncommon. Family incidence was observed even in quite small schools, but only in a comparatively small number of instances.



MAP V.

Concentration of population in New South Wales in 1921. Figures for last census have not yet been mapped. This gives an approximate idea of the relative concentration of habitation of the various districts for comparison with Maps I and II.

The analysis of the 382 rural children whose hearts were found to be affected shows that no less than 216, or 57%, had no history of rheumatism whatever. Of the remainder, 146, or 38%, had had either rheumatic fever or "rheumatism", and 20, or 5%, had had chorea. That chorea is less dangerous to the heart is realized when it is seen that of 127 children who had suffered from this type of rheumatic manifestation, 107 escaped without cardiac sequelæ at the time of the school medical examination. Langmead found chorea in 0·7% of 2,556 children; Chaiker found 75 girls in 124 cases, and that chorea appeared at a later maximum age than did arthritis. Duckett Jones and Bland, of Boston, have recently drawn attention to the favourable prognostic significance of "pure" chorea as regards the development of rheu-

matic heart disease. In a group of patients in whom Sydenham's chorea was the only manifestation of rheumatism, the incidence of rheumatic heart disease was found to be 3%, as compared with an incidence of 73% in a group in which chorea was associated with other manifestations of rheumatic fever.

In our series, 189 boys and 193 girls were found to have organic heart disease of rheumatic type, a strikingly equal sex distribution. In conclusion, amongst 62,991 country school children in New South Wales, the parents stated that rheumatism had occurred in 1,721, or 2·7%. Valvular disease of rheumatic type was found in 382, or 0·6%.

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TWENTY YEARS OF MEDICAL PRACTICE IN THE VALLEY OF THE NILE.[1]

By J. E. BATEMAN, B.Sc., M.D., Ch.M. (Sydney), F.R.A.C.S.

Egypt is the land of paradox—it touches with one arm the remotest phases of antiquity and with the other the most modern developments of civilization: one finds therapeutic methods dating from the ancient epochs of history being practised next to others based on the latest acquirements of science.

It was due to Herodotus, the Father of History, that the celebrity of the Egyptians in medicine was first made known. It was he who mentioned the fact of the specialization of ancient physicians, and that they counted among them oculists, gynæcologists, dentists and physicians, etc., and that the laws of the country made the practitioners responsible for the death of their patients in case they had not followed scrupulously the recognized law of the sciences.

As early as the Ancient Empire some 3,000 years B.C. medical men were already recognized as a separate class.[(1)]

CULTIVATED Egypt resembles in shape an arum lily, the long green stem representing the thin strip of cultivated land which is called Upper Egypt. Upper Egypt contains about as many people as the Delta, which is represented by the white flower. At the junction of stem and flower is Cairo, with her one and a quarter millions packed close and only recently beginning to overflow into the countryside in garden suburbs. At the western corner of the flower is Alexandria, and at the eastern corner Port Said. The curled tip of the lily represents the Suez Canal, whose course is outside of cultivated Egypt. Thus it comes that travellers who judge of Egypt by what they see from the canal think of it as a land of sand, whereas it is a land of mud. The houses, their floors, walls and roofs are of dried mud; the benches, ovens, animal mangers and fowl coops are of mud; most of the country roads are simply smoothed mud, watered frequently and kept even by chipping, which makes an excellent surface for motor traffic. The soil is river silt, sixty feet thick in some places, which has been deposited at the rate of five inches in one hundred years for the past five thousand years.

In the upper reaches of the Nile the basin irrigation of Pharaohic days is still in use and has served to preserve the fertility of the soil unimpaired. In the lower portions of Upper Egypt and in the Delta, perennial irrigation has been established, in which large supply canals are kept full by a series of barrages, so that every bit of this land gets a flooding once a fortnight through most of the year. Three crops are gathered yearly. The water must be guided so that it floods every little area of crop, and the fellaheen work bare-footed and bare-handed, thus contracting ankylostomiasis. They use latrines seldom, so that the soil, about the villages especially, is heavily infested. It has been estimated that a man harbouring 150 adult worms will pass about a million eggs a day in his stools. The Church Missionary Society Hospital, Old Cairo, was the first in Egypt to organize mass treatment for hookworm disease and still has up to 500 patients at a time under treatment, in spite of the multiplication in recent years of free government treatment centres throughout the country.

We use carbon tetrachloride, 3·6 to 4·8 cubic centimetres (60 to 80 minims), followed at three-day intervals by two lots of 3·9 grammes (60 grains) of "Thymol"; the patients stay ten days in hospital, are thoroughly examined, receive tonic medicines and a liberal diet, and go back to their village homes well on the way to renewed vigour.

Ascaris infestation is often considerable. I remember a boy, six years of age, who came with symptoms of acute obstruction and a sausage-shaped tumour in the abdomen. On opening the abdomen we found a mass of dead worms, and appropriate treatment ridded the boy of this obstruction. Evidently the death of the worms (by some unknown agency) had determined the block.

Another great scourge of Egypt is schistosomiasis or, as we in Egypt continue to call it, bilharziasis. This disease is contracted from contact of the skin with infected waterways. There are two varieties: (i) *Bilharzia hæmatobia*, the egg of which has a terminal spine which affects mainly the genito-

[1] Read at a meeting of the South Australian Branch of the British Medical Association on August 27, 1936. The paper was illustrated by about eighty photographs shown with an epidiascope.

urinary system; (ii) *Bilharzia Mansoni*, the egg of which has a lateral spine that affects the alimentary system mainly. The presence of the bilharzia worms and eggs in the human host evokes a plasma cell response in their neighbourhood with some larger endothelial-like cells, which sometimes form giant cells. Thus granulation tissue is formed round the eggs. When fibrosis begins in this tissue, eosinophile cells accumulate; when fibrosis is complete, the ova become old, begin to die and gradually calcify, and the eosinophile cells leave the tissue.[2] If the granulation tissue breaks down through the mucosal surface, there is a discharge of blood and bilharzia eggs, and often secondary infections supervene. Thus blood and bilharzia eggs escape in the excreta of gut or urogenital tract, giving one of the earliest signs of bilharzia infestation.

Christopherson introduced the treatment of bilharziasis by intravenous tartar emetic, a tremendous boon to thousands of Egyptian sufferers. Partly as a result of bilharzia polypus formation and partly as a result of the fibrosis and contractions which accompany cure, there develops contraction of the bladder, which shrinks till it will hold only 57 to 85 cubic centimetres (two or three ounces) of urine. As the patient is secreting a urine of very low specific gravity, 1002 or thereabouts, he has polyuria, and so is forced to rise ten or even twenty times each night to evacuate with much straining and pain his diminished bladder. Partial or complete block of the ureters at the uretero-vesical orifice and "renal colic" are complained of. Relief is obtained by dilatations with Lister's urethral sounds through a suprapubic cystotomy, sometimes followed by a slitting of the urethral orifice by a diathermy knife, or by reimplantation of the ureter in the bladder wall. One or other of these procedures has been carried out on 100 patients in recent years in the hospital, during which time 100 patients have been operated on for stone in one or both ureters. In these patients it is essential that the patency of the terminal portion of the ureter be established by dilatation and any other operation that may be necessary.

Stone in the kidney, ureter, bladder or urethra is a common result of bilharzia infestation; we operate for this condition on about 100 patients each year. Urethral fistulæ are frequent; about 60 are operated upon each year.

In the intestinal tract *Bilharzia Mansoni* affects the liver, causing a severe cirrhosis, which often results in extreme ascites with fatal issue, from the age of fifteen upwards. Egyptian splenomegaly is considered by most observers in Egypt to result from *Bilharzia Mansoni* infestation, and has been treated by splenectomy. We have removed 100 spleens for this condition. The great weight of the organ (up to 5·0 kilograms, or eleven pounds, in our series) and the fact that active red cell destruction is going on in it are the arguments in favour of operation.

Polypi often form in the rectum and cause rectal prolapse of all degrees. A simple scraping off of the polypus, with injection of *Spiritus Vini Rectificatus*, is sufficient, together with a course of tartar emetic therapy, to relieve many patients; but in extensive papillomatosis the mucosa is dissected up for four or six inches from the anal margin and excised, and the mobilized healthy gut is sewn to the anal skin margin.

Pellagra is often seen in patients suffering from ankylostomiasis or bilharziasis who have been on diets lacking in vitamin B_2. The treatment of worm infestations with a liberal diet rich in meat and fats, and brewer's yeast, causes great improvement in all but advanced cases.

Bacillary dysentery is common among both children and adults, but usually is not very severe, and responds to treatment with salines. The presence of macrophages in the stools makes microscopic diagnosis easy and rapid, so that treatment can be instituted early.

Amœbic dysentery is very common and is seen in infants quite often. Emetine given hypodermically is usually efficacious, but "Yatren" solution given rectally and bismuth and emetine iodide given by mouth are often necessary for cure. I have had two patients with urinary amœbiasis who responded to treatment with emetine. Some Egyptian colleagues have described the condition of acute amœbic cholecystitis.

Skin leishmaniasis is not very frequent; it responds to treatment with carbon dioxide snow applied locally, or with tartar emetic given intravenously.

Malaria is not at all frequent. Last year I saw ten cases, which is much more than usual. D'Herelle, of bacteriophage fame, has a theory that where clover is grown, there malaria cannot develop; and there are reasons for ascribing Egypt's immunity from malaria to the winter clover crop.

Leprosy is a very old-established disease in Egypt, where it is dying out; but in the Soudan, where it has been introduced fairly recently, it is spreading considerably.

Hodgkin's disease is relatively common among young boys; small doses of X rays give temporary relief.

Filariasis, causing elephantiasis of the scrotum or leg, is not very common. Chyluria is fairly frequent, but I suspect that bilharziasis is sometimes its cause, rather than filariasis; it is sometimes associated with enlarged glands of the groin.

Bilharziasis causes very frequently a pseudo-elephantiasis of the penis and scrotum, which is treated by specific intravenous therapy and plastic operation.

Rhinoscleroma is relatively common and no satisfactory treatment for it is known.

Trachoma affects over 90% of the children of Egypt, and often there are over 100 patients treated daily in an out-patient clinic for this disease. We have the services of an Egyptian eye specialist, trained by Dr. McCallen, and formerly an inspector of government ophthalmic hospitals. His work is

excellent. Glaucoma is common, but cataract is not very frequent; relief by operation is very imperfect if there has been long-standing glaucoma.

Malignant disease affecting the bones, skin and the skin appendages is more common than in Europe and may be attributed as far, as the skin is concerned, to the active rays of the sun in Egypt.[3]

There is very little gastric ulcer, and gastric cancer is very rare. Malignant disease develops frequently in bilharzia-infected bladders, with severe cystitis and stagnation of alkaline urine. Sarcomata are relatively more common than in Australia and Europe. There is a special form of alveolar epithelioma which is fairly common.

The progress of cancer in Egypt is as a rule less rapid, the involvement of glands less marked and the development of metastasis infrequent.[3]

When I arrived at Old Cairo I found that ether was never used for general anæsthesia, as it was believed that the climate was too hot for its use. I think it was in hospitals during the War that the use of ether as a practical anæsthetic was demonstrated in the near east. It still remains very difficult to use ether in Omdurman (the Soudan). If a corked bottle is left "in a cool, dark place" (or the nearest possible approximation), it is found to be empty of fluid in a short time during the summer months. Recently the shade temperature for a fortnight was 110° F., and it did not fall below 90° F. at night.

At Old Cairo about 1,000 operations for hæmorrhoids or for bilharzial polypi in the rectum were the yearly total, and an Egyptian surgeon, after his morning out-patient clinic, would perform a dozen or so. There were two tables; an Egyptian dresser would anæsthetize one patient with chloroform and the doctor would start operating. The dresser would then start chloroforming the man on the other table. If the first man showed signs of coming out, he had to receive a few more drops. By the time the doctor had finished the first patient, the second one would be ready. So the business went on till the list was finished. The rush times were in the hot summer months, and I think the high atmospheric temperature decreased the danger of an overdose of chloroform; we had no fatality in thousands of patients.

Chloroform was used then for all operations. Nowadays we use chloroform very seldom; usually only when a diathermy current is operated near the mouth. The great majority of operations on Egyptians are below the belt, and we find spinal anæsthesia very convenient; it is cheap, quick, gives excellent relaxation, makes after-nursing minimal, and the patients ask for it. We give a hypodermic injection of 0·0108 to 0·0162 gramme (one-sixth to one-quarter of a grain) of morphine and 0·0006 gramme (one one-hundredth of a grain) of hyoscine an hour before operation, and 0·0486 gramme (three-quarters of a grain) of ephedrine sulphate five minutes before the spinal injection. We use the technique suggested by Kennedy in The Medical Journal of Australia of January 9, 1932, and find that very few headaches are complained of, and almost all are in patients who have had minor operations and who have disobeyed orders to refrain from movement on returning to the ward. For many years we used "Stovaine", then "Novocain", and now find "Percaine" better; with "Percaine" there is less retention of urine—one of the main drawbacks of the method. We have administered over 2,000 spinal anæsthetics a year for many years now and are well pleased with the results. For long dissections of glands of the neck, for mastoids, goitres and malignant disease of the jaws *et cetera* we used ether given rectally for many years with satisfaction; but we have substituted "Avertin", or preferably paraldehyde, as a basal narcotic, followed by ether given by the open method. We have used Corlette's technique for local infiltration anæsthesia with good results. This technique is the best for strangulated hernia—a relatively frequent operation.

Hernia indeed is very common, and during a period of many years we operated on 360 patients with inguinal hernia each year. Some of these hernias are of large size, and a considerable proportion in old men are of the direct type. Often men of sixty-five or seventy years or more come for repairs of hernias which they have carried round for ten or twenty years; I think they want to get fit for the joys of paradise. We use Gallie's method of fascial suture for all big hernias and find that it gives good results. The strip is taken from the *fascia lata*, or, when possible, from the aponeurosis of the *obliquus externus abdominis* muscle.

Hydrocele is relatively common; about 190 operations a year, some of them very large, are performed for this condition. Even the stallions in Egypt develop hydrocele. Hydrocele of the cord is quite common, and if we see abdominal hydrocele occasionally a bilocular sac is found, part in the scrotum and part in the abdomen; our largest sac contained 28 pints of fluid, and the testicle was stretched over it in a thin sheet.

In gynæcological surgery we have to deal with the results of unskilled attention by midwives of the old school. Colporrhaphies are often needed, and vesico-vaginal and recto-vaginal fistulæ are relatively common. The repair of the former often taxes one's ingenuity and patience. Cæsarean section is seldom necessary, as the Egyptian female pelvis is roomy. Rubin's test of the patency of the Fallopian tubes is used often in investigating the cause of sterile marriages; it is preferable to the method of trial and error by marriage and divorce. There are half as many divorces as marriages in Egypt. A patient of mine who had recovered from a severe prostatic abscess, but was sterile, chose as his present wife a lady whose previous marriage had been infertile; thus he astutely avoided the chance of recriminations.

Chronic prostatic congestion is very common, being the result of excessive coitus or of *coitus*

interruptus et cetera. Whenever the patient complains of piles, we always test the tenderness of his prostate; and if he says he feels pain in the region of the lower ribs, we almost invariably find a tender prostate that responds to gentle massage and post-urethral instillations of silver nitrate solution *plus* sedative drugs given by mouth.

Tuberculosis of the glands is less common than it was formerly. Affections of the flat bones of the pelvis are much more common than tuberculosis of the hip joint. Pott's disease of the spine is not very common, but tuberculosis of the elbow and wrist is seen occasionally.

Pulmonary tuberculosis is increasing in incidence, and the Government is beginning to tackle prophylaxis. I remember a patient of forty-five years coming to me with advanced pulmonary tuberculosis. He said that when his cough began to trouble him he had gone to a wise man, who told him to procure the head of a Christian (he was a Moslem) who had died recently; this is easy, as the dead are laid in tombs, not buried. He was to wrap this head in a cloth and put it on a shelf in his bedroom. As the head dried up, so, said the wise man, the patient's cough would also dry up. He came to me because the treatment had failed; but as I could do little to relieve him, I expect in his opinion my powers did not differ materially from those of the wise man.

The preventive aspect of medical service is of great importance in Egypt, and week by week we show series of coloured lantern slides to the thousands of hookworm and bilharzia patients, explaining clearly how they have contracted these conditions and how they can banish them. Short, simple pamphlets have also been prepared by us on these subjects and are circulated in the villages.

Infant welfare work was begun in Egypt by the Church Missionary Society, and two excellent centres are teaching mothers in practical fashion how to care for their infants. Our missionaries have executed well-designed coloured posters to emphasize the lessons; these are now used throughout the government infant welfare centres that have been organized.

Not least of the services the hospital renders is the careful selection and training of young Egyptian boys and girls to nurse and serve in the hospital. Most of these young people have caught the spirit of Jesus of Nazareth, and in our daily morning meetings for prayer and worship the corporate spirit of the hospital has developed till it is renowned far and wide in the Nile Valley for its friendly and efficient service to the sick.

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NON-EPIDEMIC TYPHUS: A REPORT ON FOURTEEN CASES OCCURRING ON THE GOLDFIELDS, WAU, MANDATED TERRITORY OF NEW GUINEA, BETWEEN JANUARY 1, 1935, AND JUNE 30, 1936.

By R. VON DER BORCH, M.B., B.S. (Adelaide).

DURING the early part of 1934, Dr. N. McKenna, Government Medical Officer at Wau, Dr. I. Dickson, late medical officer for New Guinea Goldfields Limited at Wau, and Dr. Carl Gunther, medical officer for Bulolo Gold Dredging Limited at Bulolo, first diagnosed the occurrence of tropical typhus in whites working on the goldfields. McKenna, I think, first suggested the true nature of the disease, having noted the similarity of the condition to Malayan typhus, with which he was familiar. Because of clinical findings and the recognized occurrence of "bush mocca" infestation, the name "Japanese river fever" or *tsutsugamushi* was adopted as the most appropriate.

I shall confine my remarks almost entirely to the clinical aspect so far as I have observed it. Dr. Gunther reported in THE MEDICAL JOURNAL OF AUSTRALIA a small series of similar cases, occurring in whites working near the dredges on the Bulolo flats. Dr. Gunther is preparing a paper dealing with the serological investigation of these cases, and has supplied me with all the figures here reported.

FIGURE I.

Suspected Vector.

Widely distributed in the goldfields area is a species of mite, known as a "mocca", which gets onto the clothing and skin of whites who go off the beaten tracks. Prospectors, surveyors, patrol officers and other such people are therefore mainly affected. Apparently also certain people are more prone to infestation than others; some men always

become covered with mocca bites when in the bush, whilst others claim that they are never affected. The mite is just visible to the naked eye, has a red abdomen (which makes it visible), and penetrates always along a hair follicle, selecting mainly the lower extremities or waistline. Extreme itching results and a papular rash is produced, sometimes becoming pustular. This lasts a week or ten days if given attention, but may result in widespread pustular eruptions lasting many weeks.

Inconclusive examination of these mites by Dr. Backhouse, Government Pathologist at Rabaul, shows them to be species of Trombiculæ, similar to the known vectors of Japanese river fever and the Malayan form of typhus.

The Lesions.

All patients have shown a typical lesion, single in thirteen cases and duplicated in one case only. The lesion is always characterized as follows: a central, dry, circular eschar from one-quarter to one-half an inch in diameter is surrounded by a dull red ring of lymphangitis approximately one-

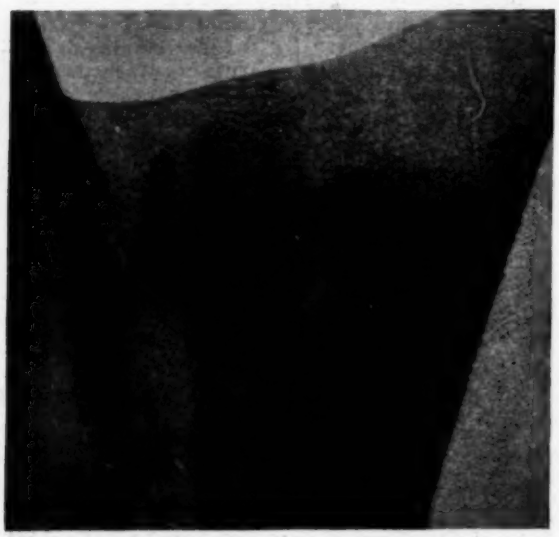

FIGURE II.

eighth to one-quarter of an inch wide, slightly raised above the skin surface. From this sometimes radiate short, dull red pseudopodia. In this series of cases one enlarged and slightly tender lymph gland has been present, situated in the gland group appropriate to the site of the lesion.

It is worth noting that never have I seen evidence of generalized mocca infestation on the skins of typhus patients, nor have the patients necessarily been of the type readily attacked by the common itch mite. I have thus gained the impression that the vector responsible is not of the common species, but a far more rare variety which occurs in sparse numbers.

The lesion seems to occur more commonly in certain sites. In five cases it appeared on the axilla; in four cases, on the calf of the leg; in two cases, on the thigh; in two cases, on the scrotum; and in one case, at the waistline.

FIGURE III.

The central eschar is cast out about seven days from the onset of the illness, leaving a skin-deep sloughy pit. The surrounding area of redness fades at about the same time, and the ulcer heals slowly in conformity with all ulcers in the tropics. A permanent, slightly pigmented scar results.

Predilection for Whites.

No cases of typhus have been observed among natives, although a careful watch has been kept. This is remarkable, since the natives are always in greater numbers in the infected areas, and always do the preliminary work, such as cutting bush *et cetera*, so producing the conditions associated with the infection of most of the patients observed. Further, I have never noticed natives to be troubled by mocca itch, which suggests that they are distasteful to the common bush mite.

Geographical Distribution.

All the cases, with two exceptions, have occurred in and around Wau. The conditions under which

infection has apparently occurred are similar in all cases, with the exception of three cases in females.

All patients have lived or worked on the banks of tributaries of the Bulolo River or on the Bulolo River itself, with the exception of two patients from a totally different area, namely, the Upper Watut River.

Crystal Creek[1]	4 cases	Namie Creek	1 case
Kulolo Creek	2 cases	Kunai Creek	1 case
Little Wau Creek	2 cases	Hospital Creek	1 case
Bulolo River	1 case		
Upper Watut area:			
Manki Creek	1 case	Surprise Creek	1 case

With the exception of the three women who suffered from the disease, and who apparently became infected in the bush immediately surrounding their abodes, all the male patients were associated with work necessitating the clearing of virgin bush for development or prospecting purposes.

Clinical Picture.

The incubation time of the disease is difficult to determine, as can be well understood; but from the clear-cut history of one patient who paid a visit to a known infective area (namely, Crystal Creek) on one day only, it is apparently ten days.

The time of appearance of the lesion is likewise difficult to determine precisely, but the lesion is most probably developed some four to five days before the onset of the illness.

The onset of the illness is sudden and is accompanied occasionally by twenty-four hours of slight general malaise. Slight chills with an occasional genuine rigor, intense headache, malaise and anorexia are the usual complaints. The majority of patients think that they have malaria and report sick only because of the ineffectiveness of quinine.

A complaint of persistent frontal headache and anorexia, combined with the finding of a typical lesion, makes the diagnosis straightforward.

The patient's temperature may range at the onset from 37·8° to 38·9° C. (100° to 102° F.), with a pulse rate of from 75 to 85 per minute. This low pulse rate has been noted in all cases under observation.

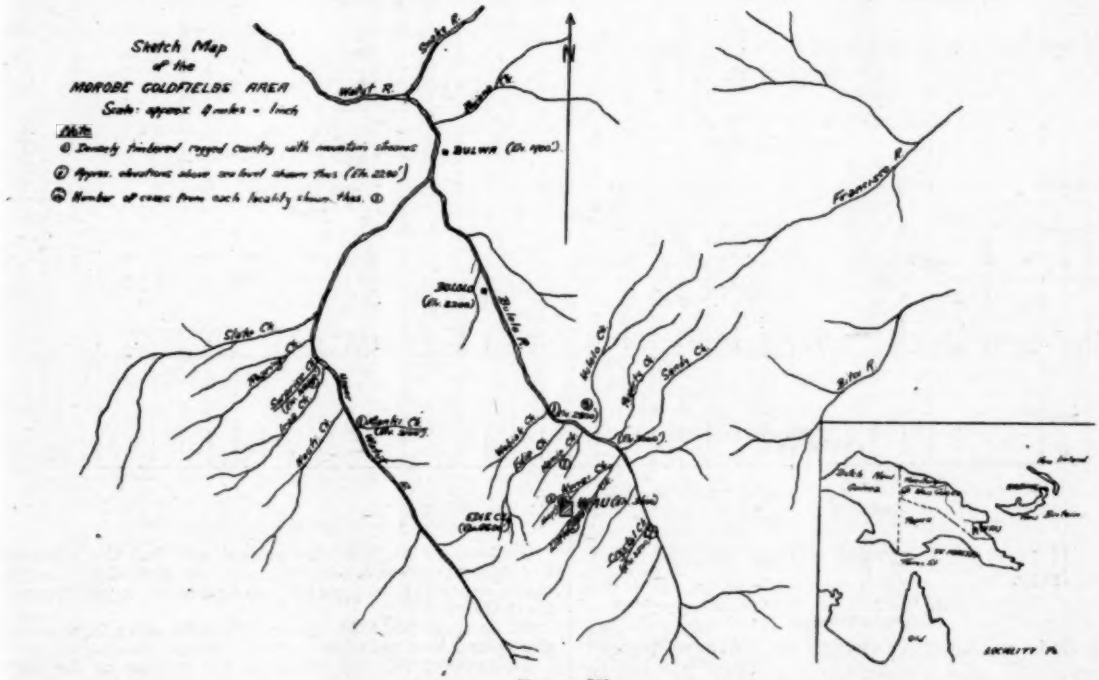

FIGURE IV.

As to the duration of the illness, an uncomplicated case of moderate severity runs a course of approximately seventeen days. In mild cases the patients are quite well in ten days. Complications may prolong the illness for five weeks.

A rash was noted in all cases; in some it was scarcely visible, in others quite obvious. It appears from the fifth to the seventh day, becoming most intense at about the mid-period of the illness, when the toxæmia is most marked, and fades as the toxæmia subsides. The rash is macular in character, very light to dull red in colour, and appears first on the upper part of the abdomen, chest and back, being always most evident on the back. It may extend to the shoulders, thighs and face. It has completely faded by the time the temperature has subsided, and does not produce desquamation.

[1] Previously there were three or four cases from this area, not observed by me.

The character of the illness is typically typhus-like, and a toxæmia of mild to profound degree dominates the picture. In very severe cases a state of stupor with low muttering delirium or restlessness has been noted. Slight deafness is always complained of—in mild cases the patients are merely apathetic and, apart from headache, have no complaints. Eventual convalescence is rapid and complete.

The spleen becomes palpable in all cases, the enlargement being first noticeable about the fifth day. It returns to normal during the last week of the fever.

History of a Typical Case.

On January 22, 1935, a male, aged thirty-five years, an alluvial miner, came for examination; he had been prospecting in dense undergrowth around Crystal Creek. The onset of illness had occurred on January 21, 1935, with slight rigor, general malaise, headache and complete loss of appetite. He had noticed a peculiar black-centred sore under the right axilla three days before he became ill.

On examination he was seen to be a strong, robust man. He did not appear sick and had walked about five miles to consult me. His temperature was 37·9° C. (100·2° F.), and his pulse rate 88. General examination revealed no abnormality, except for the typical lesion under the right axilla and one enlarged, slightly tender lymph gland deep in the apex.

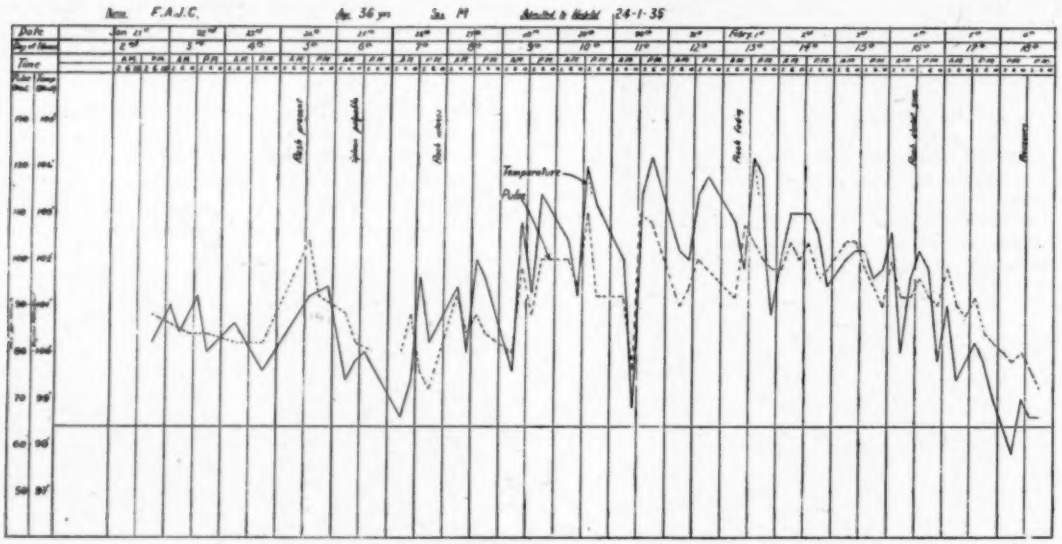

FIGURE V.

Complications.

There is a tendency always to the development of bronchitis, which condition has been present in even the mildest cases. Four patients developed areas of pneumonic consolidation, lobar in type in three cases and patchy in one. Two of these cases were fatal. In one patient fresh areas of pneumonia persisted in developing for five weeks before eventual recovery.

Mortality.

Two out of the fourteen patients died, death resulting from toxæmia and pneumonia followed by cardiac failure. These were elderly alcoholics. In all, approximately twenty-three cases have been recognized in the district, with five deaths.

Serological Findings.

All sera have produced an agglutination against *Bacillus proteus* (Kingsbury) in a dilution of 1 in 80 or more, whilst being inactive against *Bacillus proteus* X19 and Warsaw strains.

On January 24, 1935, the patient still had the headache and other symptoms, and the rash was just visible on the chest, upper part of the abdomen and back; it was macular in character.

On January 25, 1935, the rash became more intense and the spleen was palpable.

On January 26, 1935, the rash was intense on the body, face and shoulders and on the upper thigh regions.

On January 31, 1935, the patient was dull and apathetic, and his condition very toxic.

On February 2, 1935, the rash began to fade, and two days later it was gone. The patient's recovery was complete on February 6, 1935.

Summary.

1. Fourteen cases of a non-epidemic form of typhus have been observed, which closely resemble Japanese river fever or *tsutsugamushi* clinically and serologically.

2. The vector is unknown, but the suggestion is made that it is mite-borne, as species of Tromiculæ are commonly found on bird, beast and man.

3. The vector is present in dense bush, mainly in the vicinity of rivers or their tributaries.

4. There appears to be no seasonal incidence, as cases have been scattered all through the period from January, 1935, to June, 1936.

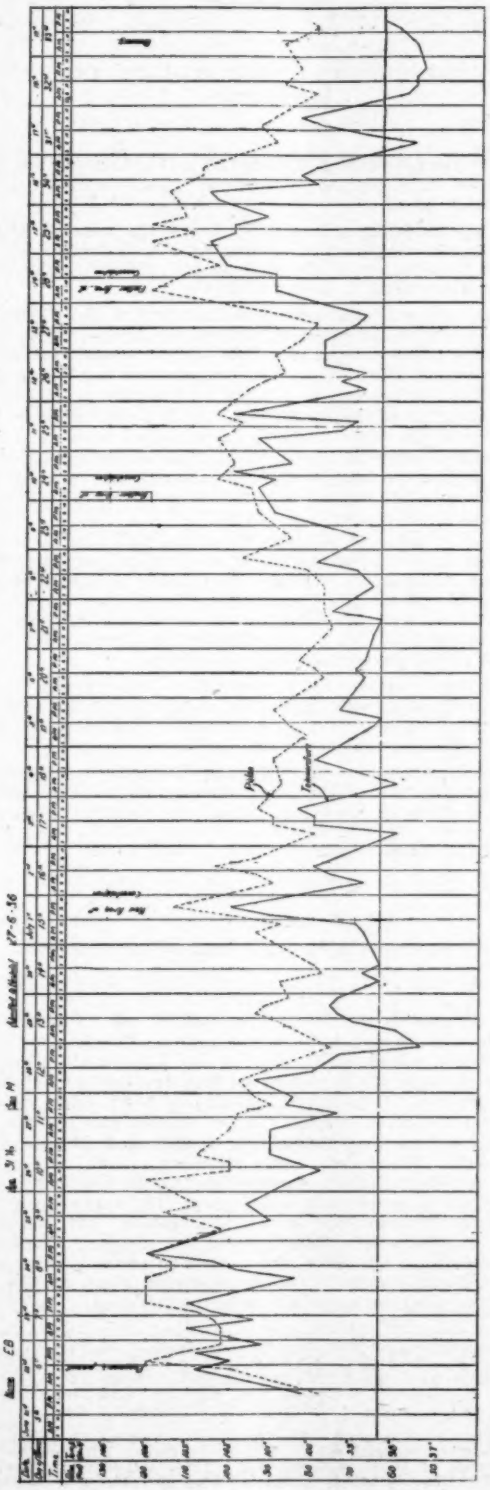

Figure VI.

5. Fatal termination appears unlikely in robust and moderately young patients, although they may appear very ill. Elderly alcoholics have a poor chance of recovery.

6. Death ensues from toxæmia, pneumonia and cardiac failure.

Acknowledgements.

Thanks are due to Dr. Carl Gunther for serological investigations and advice, to Dr. N. McKenna for consultations, and to Mr. Norman Fisher, M.Sc., Government Geologist, Territory of New Guinea, for drawing the map.

Reports of Cases.

THE SEROLOGY OF SIXTEEN CASES OF ENDEMIC TYPHUS IN NEW GUINEA.

By Carl E. M. Gunther, M.B., B.S., D.T.M. (Sydney),
Bulolo, Territory of New Guinea.

With the exception of the first two cases, which were my own, and which were reported in detail in The Medical Journal of Australia of June 29, 1935, all the patients referred to in this report were seen by Dr. R. H. von der Borch, of Wau, to whom I am indebted for collecting and forwarding samples of blood and for permission to publish these results.

The first two cases of endemic typhus occurred at Bulwa, the remainder in and around Wau, covering substantially all of the Wau-Watut-Bulolo section of the Morobe goldfields area. I understand from Dr. von der Borch that all his patients showed a typical eschar and rash such as I found in my patients, and the clinical course of the disease agreed essentially with my findings.

Technique.

Serum was collected from venous blood in the usual manner, and a series of dilutions in saline solution, from 1 in 10 upwards, was made. In the first five cases the serum was tested against *Bacillus proteus* Kingsbury and *Bacillus proteus* Warsaw; in the remainder it was also tested against *Bacillus proteus* Lister X19. The emulsions used were Commonwealth Serum Laboratories' products.

Throughout each series the same fine-drawn Pasteur pipette with square-cut end and rubber teat was used for all measurements and was thoroughly washed with saline solution after each time of using. A series of tubes was put up for each emulsion, five drops of the respective emulsions and five drops of the successive dilutions of serum being placed in each tube, giving final dilutions of serum of 1 in 20 and upwards. Controls were put up for each series, containing five drops of saline solution and five drops of emulsion. The tubes were placed in a water bath at 37° C. (98·6° F.) for two hours and then allowed to cool to room temperature.

Results.

The results of testing are shown in the table, which indicates the highest titre at which agglutination occurred. They show that the serum of patients suffering from the disease agglutinates emulsions of *Bacillus proteus* Kingsbury at titres up to 1 in 5,120, but does not agglutinate emulsions of either *Bacillus proteus* Warsaw or *Bacillus proteus* Lister X19 at a titre of 1 in 20.

Conclusions.

1. Serologically the disease resembles *tsutsugamushi* fever, Malay scrub typhus and scrub typhus of the East Indies (Type *XK* of the typhus group of fevers as classified by Felix[10]).

TABLE I.

Case Number.	Day of Illness.	Weil-Felix Titre.			Remarks.
		Kingsbury.	Warsaw.	Lister X19.	
I	150	20	—	Not tested.	Recovered.
II	8	80	—	Not tested.	
	16	160	—	Not tested.	
	260	—	—	—	Recovered.
III	23	160	—	Not tested.	
	40	320	—	Not tested.	Recovered.
IV	21	5,120	—	Not tested.	Recovered.
V	12	160	—	Not tested.	
	25	640	—	Not tested.	Recovered.
VI	6	80	—	—	
	17	160	—	—	Recovered.
VII	7	80	—	—	
	21	160	—	—	Recovered.
VIII	6	160	—	—	
	8	320	—	—	Died on the tenth day.
IX	17	2,560	—	—	Recovered.
X	14	160	—	—	Recovered.
XI	14	160	—	—	Recovered in two months; abortion on the eighth day.
XII	21	640	—	—	Recovered.
XIII	12	—	—	—	
	18	160	—	—	Died on the nineteenth day.
XIV	14	320	—	—	
	60	160	—	—	Recovered.
XV	11	40	—	—	
	23	1,280	—	—	Recovered.
XVI	18	1,280	—	—	Recovered.

2. Agglutination of *Bacillus proteus* Kingsbury at a titre of 1 in 80 at the end of the first week of illness is diagnostic.

Reference.

(1) A. Felix: "The Serology of the Typhus Group of Diseases", *Transactions of the Royal Society of Tropical Medicine and Hygiene*, Volume XXIX, July, 1935, page 117.

Reviews.

THE HISTORY OF GYNÆCOLOGY AND OBSTETRICS.

IN "Gynæcology and Obstetrics", a further number of the series "Clio Medica", the author has given us a really delightful book.[1]

To all students of medical history the concise little volume will make an immediate appeal, if for no other reason than for its really international flavour, which, in an American book, is no mean feature.

From the early period, including that of the Hebraic laws on the nature of menstruation, the author traces all the known facts of Greek and Roman obstetrical and gynæcological knowledge. Vesalius, Eustachius, Fallopius, Ambroise Paré, names to conjure with during the Renaissance, all are given prominence and the contributions to knowledge are duly recorded.

A really delightful chapter is that on the history of the forceps, and the author again points out how strange it is that this instrument was not thought of before the seventeenth century.

There is one real omission from the book—no mention is made of that most famous of all lying-in hospitals, the Rotunda. Bartholomew Mosse, the founder of the Rotunda, surely deserves a place among the names that will never die, and we feel the omission will come as a surprise to all the faithful adherents of what is surely still the sanest of all obstetrical teaching schools.

Puerperal sepsis and gynæcological surgery are both dealt with in a most interesting manner, and the reader puts the book down full of admiration that so much can be put into so small a volume.

The illustrations are good, and there is a very full bibliography with a list of classics on the subjects dealt with in the book, the whole being very clearly printed on good paper. This is altogether a very readable book and one to be commended.

THE PATIENT AND THE WEATHER.

DR. PETERSEN'S treatise on "The Patient and the Weather" has been developed in a second part to Volume I.[2] The hypothesis presented in Part I is recapitulated; after which the bulk of the present work is devoted to a detailed consideration of the physiological and biochemical variations of four type subjects. Other studies and records of human beings and animals in health and disease are included. The indefatigable attempts of the author to correlate the reactions of his subjects with meteorological disturbances are seldom convincing. He draws upon an immense bibliography in his discussions, but without profit to his cause. Many records are given of elaborate investigations, but these are treated so entirely as propaganda for the author's theory of physiological syndromes that the work arouses little scientific interest.

[1] "Clio Medica: A Series of Primers on the History of Medicine", edited by E. B. Krumbhaar, M.D.; XVII: Gynecology and Obstetrics, by E. M. Janeson, M.D.; 1936. New York: Paul B. Hoeber. Foolscap 8vo, pp. 185, with illustrations. Price: $1.50 net.

[2] "The Patient and the Weather", Volume I, Part 2, Autonomic Integration, by W. F. Petersen, M.D., with the assistance of M. E. Milliken, S.M.; 1936. Michigan: Edwards Brothers, Incorporated. Imperial 8vo, pp. 811, with illustrations. Price: $9.00 net.

The Medical Journal of Australia

SATURDAY, MARCH 20, 1937.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

THE RELIEF OF LABOUR PAINS.

SOME years ago a writer in this journal defined a normal labour as one in which the uterine contractions acted thoroughly and efficiently, leading in a short time to the spontaneous delivery of a healthy baby and causing but little or no distress or suffering to the mother. In other words, a normal labour should be painless. This ideal is not often attained, and the reasons for this failure doubtless lie deep-rooted in the present state of civilization and in man's mode of living. What passes today as civilization is likely to become more complicated instead of simpler, and obstetricians of the future will doubtless find that labour in their day and generation will be more painful and generally more complicated than it is in this. There are many reasons why every effort should be made to relieve the pains of labour; the chiefest is that no one should be allowed to suffer severe pain if means of preventing it are available. It should also be remembered that there is such a thing as obstetric shock, and one of the factors in its production is pain, the others being fear, fatigue from a long-drawn-out labour, and manipulations by the obstetrician.

In any attempt to relieve the pains of labour a start should be made early in the pregnancy to remove fear of the labour. A woman who has no fear of the ordeal through which she has to pass is not so likely to be affected by the uterine contractions as is one who has had nothing but fear of childbirth from the time of her conception. In a discussion before the Section of Obstetrics, Gynecology and Abdominal Surgery at the annual meeting of the American Medical Association in May, 1936,[1] J. B. De Lee, the well-known author of a text-book on obstetrics, suggested that the uterus could be affected by the mind, and he added that in conducting a labour he often used hypnotism as well as suggestion. He said, however, that great care was required in the use of hypnotism. He concluded by saying that if one could bring the patient's mind "into a proper evaluation of the nature and purposes of labour" the first stage could be conducted with a minimum of anæsthetic agents; and, in his opinion, it was not a far cry to say that perhaps contraction rings would be to a large extent eliminated, labour assuming a more normal course. Once labour has started, there are many methods of producing analgesia. From time to time Australian practitioners have published in this journal the results of their experience with various drugs; and it is interesting to note that at the American Medical Association meeting already referred to, three papers were read on the subject. O. S. Krebs, G. L. Wulff and H. C. Wassermann presented a paper in which they dealt with scopolamine-morphine semi-narcosis with certain modifications. They find that they can, as a result of twenty years' experience, state that the use of these two drugs in no way increases fœtal mortality. Latterly they have been using barbituric acid derivatives in addition; they find that with the barbiturates the opiate can be reduced. C. E. Galloway, R. M. Grier and R. Blessing presented a paper in which they detailed three years' experience of pento-barbital-sodium and scopolamine hydrochloride. They find that the method is not universally

[1] *The Journal of the American Medical Association*, November 21, 1936.

applicable, that it increases fœtal morbidity if somnolence, flaccidity and bradycardia of the infant are taken into consideration, but that it does not produce an increase in fœtal mortality. H. F. Kane and G. B. Roth presented a paper on the use of paraldehyde and benzyl alcohol. They state that they have given these drugs by the rectum and that complete amnesia has been produced in practically all labours of more than four hours' duration. They add that neither mother nor child suffered ill-effects. The discussion that followed the reading of these papers was interesting. One important point emphasized by several speakers is that the use of drugs of this kind calls for most careful supervision of the patient after administration. It was also shown that after the administration of drugs to produce analgesia the percentage of infants that cried lustily immediately after delivery was lower than when no drugs were given. This is, of course, only to be expected.

After reading the papers presented at this meeting, a practising obstetrician will at once realize that the ideal drug for the relief of labour pains has not yet been discovered. Those that have been mentioned are, of course, of great benefit, but the medical attendant using them will occasionally have anxious moments, particularly as far as the child is concerned. The use of drugs of any kind for the relief of pain in the first stage of labour will always call for increased care and watchfulness on the part of the medical attendant, but this is no contraindication to their use. Two general conclusions may be drawn from this short review of the subject. The first is that the relief of pain in labour provides a field for research likely to yield results that will be of immense value to mankind. The second is that women should be taught that labour may be made practically painless if they will cooperate with the obstetrician from the early days of their pregnancy onwards. The newspapers are continually reminding the public of the falling birth rate and of the danger to the race in the years to come if the decrease is not stopped. Without worrying ourselves about the rights or wrongs of these plaints, we may believe that most women will be willing to have children if they have the means to provide for them after their birth, and if the birth itself is not too terrifying an ordeal. The economic question is for statesmen and others of that ilk; the making of labour painless and not to be feared is a matter for medical research and medical practitioners.

Current Comment.

MYOTONIA CONGENITA.

In *myotonia congenita*, a rare disorder, the muscles exhibit a curious rigidity when they are voluntarily contracted after rest, and after contraction there is slowness of relaxation. Rigidity occurs in the muscles and the patient is immobile. This cramp-like condition relaxes in a short time and the immobility disappears. After rest, hurried movements may be impossible. Muscular hypertrophy supervenes, with diminished power of contraction. The lower extremities are implicated more often than the upper; the face is less often affected. Although the disease had previously been described, the name of J. Thomsen is associated with the condition, as in 1876 he established the hereditary nature of the disorder. Thomsen himself was a sufferer and the disease existed in his family for five generations. The disease is of long duration and may be manifested in very early life.

H. G. Poncher and Helen Woodward summarize the publications concerning *myotonia congenita*.[1] W. Erb, in 1886, described an increased irritability of the muscles in response to mechanical, galvanic and faradic excitation and termed it the myotonic reaction. Erb also described histopathological changes in the muscles. In the following year, G. W. Jacoby described similar changes, but in 1898 he concluded that the changes were artefacts. Although much speculation has been indulged in regarding the ætiology of Thomsen's disease, we are still searching for the explanation. Poncher and Woodward consider the ætiology and pathogenesis of *myotonia congenita* to be just as obscure and as controversial as they were in the latter part of the nineteenth century. However, there have been advances in the chemistry of muscle which throw some light on the possible mechanism of the disorder. After the relationship of creatinine and creatine excretion to degenerative and hyperplastic states in muscle had been shown, L. Findlay investigated the relationship of such findings to *myotonia congenita*. In one instance he found no creatine excretion with a creatine-free diet and a high normal or slightly elevated creatinine coefficient. He considered the evidence to be against degenerative changes in the muscles, and also that the raised creatinine coefficient might indicate increased mus-

[1] *American Journal of Diseases of Children*, November, 1936.

cular efficiency caused by excessive effort to overcome spasm. Findlay was of the opinion that the nervous system was involved in addition to the muscles, and S. Pansini considered that the derangement implicated the muscles only and not the nerves. In 1924, K. Nissen, who was a grandnephew of Thomsen, concluded that *myotonia congenita* should be classed with the myopathies and that the immediate cause should be sought in a change in the sarcoplasm brought about by physicochemical alterations in the germ plasm.

Poncher and Woodward have made an extensive study of a child for three years from the age of five months. In the absence of any family history of *myotonia congenita* or other disorder involving muscular function, the diagnosis cannot be deemed to have been definitely established. However, the data obtained in the study of this child suggested a relationship between *myotonia congenita* and abnormal creatine metabolism. In this child there was an absence of the physiological creatinuria of infancy and childhood. Creatinuria appeared when thyreoid extract was given, and the amount of creatine appeared to be related to the dose of the extract. Thyreoid administration did not materially affect creatinine excretion. The patient was made symptom-free by carefully controlled thyreoid dosage. While the patient was symptom-free, the oral exhibition of one gramme of creatine caused a return of the myotonia in spite of the excretion of an approximately normal proportion of the ingested creatine. Diminution of the amount of creatine excreted was always associated with myotonia. Myotonia and muscle hypertrophy were relieved when creatine excretion was established at a normal level by thyreoid administration. While under observation, this patient suffered from pertussis and measles and, in spite of the fact that he was then receiving thyreoid, creatine excretion diminished and the myotonia returned. But even in the presence of these infections the myotonic symptoms were relieved by an increase in the thyreoid dosage. The amount of creatine excretion remained small while the infectious conditions continued, although the temperature was elevated.

The findings of Poncher and Woodward strongly suggest some connexion between Thomsen's disease, creatine metabolism and thyreoid exhibition. The authors pertinently inquire how such observations can be applied to adult male patients affected with *myotonia congenita*, in whom creatinuria is normally absent. A man, aged twenty-two years, suffering from Thomsen's disease, was investigated. When creatine was given there was complete retention of the creatine with no increase in creatinine excretion. Myotonia was aggravated during creatine ingestion. After thyreoid administration there was neither creatinuria nor relief of symptoms, but rather accentuation of myotonia. An attempt was made to ascertain why treatment by thyreoid extract (or thyroxin) apparently succeeds in children with *myotonia congenita*. It had been noted that creatine was absent or greatly diminished in the urine of untreated hypothyreoid children, but appeared in normal quantity when thyreoid extract was given. When clinical improvement occurred with thyreoid administration in a child suffering from Thomsen's disease, there had been no evidence that the child was deficient in thyreoid. Poncher and Woodward have never observed muscular hypertrophy and hypertonia in untreated hypothyreoid children, and they frankly admit that the fact that children with muscular hypertrophy and hypertonia respond to thyreoid treatment is no proof that the condition of all patients exhibiting such symptoms is based on hypothyreoidism. We cannot say why adults with *myotonia congenita* do not respond as do infants to thyreoid treatment, or why hypertonia and muscular hypertrophy are not more often seen in patients with hypothyreoidism. Evidence of hypothyreoidism has not been encountered in cases of *myotonia congenita*. The problem as to the connexion, if any, between Thomsen's disease, creatine-creatinine metabolism and thyreoid activity awaits solution.

ECONOMICAL OXYGEN ADMINISTRATION.

CONSIDERABLE investigation into the most satisfactory methods of administering oxygen for therapeutic purposes has been conducted within the past three or four years. Modern oxygen tents, with provision for cooling, carbon dioxide absorption and circulation of air, have been designed by Hill, Campbell, Poulton and certain American firms. From the patient's viewpoint such tents are much more comfortable and efficient than the nasal catheter or rubber face-mask. They have the disdisadvantages that they are expensive and even wasteful of oxygen, and call for skilled attention, which includes frequent analysis of gas samples from the interior. J. Argyll Campbell has latterly designed a smaller box mask and face-tent which do away with these duties, besides rendering the nursing of the patient a much simpler task.[1] The running cost is just about half that of the full bed tent. The use of the box mask means that the patient must tolerate some apparatus on the face; but he is not isolated, and he can communicate freely with others. The mask may be improvised from cardboard and a catheter in a few minutes, a great advantage under many Australian conditions; or a permanent frame may be constructed from aluminium. When in use the mask is connected with a Bobbin flow-meter through which the oxygen passes from a standard automatic regulator fixed to the oxygen supply cylinder. The oxygen is moistened by dew, which condenses on the inside of the mask. Campbell has proved that his apparatus can maintain an oxygen tension of half an atmosphere in the alveolar air with a discharge of six litres per minute from the supply. This can be raised to 60% or 75% of oxygen inside the mask if

[1] *The Lancet*, January 9, 1937.

necessary, for the treatment of carbon monoxide poisoning for example, by hanging a small curtain of lint over the open lower end of the mask.

The face-tent described by Campbell has the same shape as the mask. In both, the inlet tube is bent so that the incoming stream of oxygen strikes the centre of the top of the apparatus. The frame of the face-tent is of wire; it is collapsible, and so easily transported. The frame is covered with closely woven linen material. The linen may be moistened with water to obviate the chief drawback to this form of apparatus, namely, overheating inside. The apparatus is manufactured by Siebe, Gorman and Company, the makers of diving apparatus, who have so often collaborated with Argyll and Leonard Hill in the medical aspects of this subject.

In view of these developments, hospital authorities would be wise to pause before expending considerable sums of money on large bed tents, and to test for themselves these comparatively inexpensive innovations.

FUNGUS INFECTIONS OF THE LUNGS.

ATTENTION has been drawn in these pages before to the occasional importance of certain of the pathogenic fungi in chronic infections of the lungs and bronchial tree. One of the species of *Monilia* (*Monilia albicans*) has been found by numbers of observers in lesions of the respiratory tract, and it is probable that this type of infection is more common than is generally realized. K. Ikeda, in collecting a series of five cases, describes the symptoms and pathology, and also gives an account of some experimental work done on animals.[1] Three clinical types of infection are described: a mild, a moderate and a severe. The mild type may merely cause a slight but persistent and recurrent cough, with scanty sputum, usually considered to be a simple chronic bronchitis. The moderate type appears merely to be an exaggeration of this slight variety, except that a diagnosis of bronchiectasis or asthma may be made. In the severe form of fungus infection the *Monilia* may appear in the sputum as the sole infective agent, or it may be present in company with other pathogenic organisms. A severe infection is caused in either case. The illness may be of an acute pneumonic variety in which a diagnosis of pneumonia is made, and a history of previous attacks is often given. In other cases the course of the illness is long; progressive destruction of the pulmonary tissue takes place, accompanied by a gradual exacerbation of the patient's morbid state, emaciation, dyspnœa and the coughing of an increasing quantity of a curiously tenacious curd-like sputum being special features. The physical signs and the whole clinical picture strongly suggest chronic pulmonary tuberculosis. It is significant that *Monilia* is often found to be a secondary invader of the cavities in tuberculous disease of the lungs. In two of Ikeda's cases pulmonary fibrosis seemed to be the actual cause of death, leading to failure of the right side of the heart. X ray examination usually reveals shadows suggestive of bronchiectasis, with extensive peribronchial fibrosis and sometimes cavitation.

The author points out that the mere demonstration of a pathogenic fungus such as the *Monilia albicans* in the sputum is not sufficient to establish a diagnosis of pulmonary moniliasis. Yeast-like bodies, budding forms and sometimes branching filaments are demonstrated with comparative ease when true primary infection exists, though sometimes only cultural methods yield positive results. Serological reactions have been investigated by a number of workers, as has also a skin sensitivity test, in order to facilitate diagnosis, but these methods have not been very helpful. There are two possible sources of infection: the organism may be present in the upper respiratory tract and may infect the bronchi or lungs by direct aspiration, or it may gain access from dust which may be contaminated by the resistant spores. This latter mechanism has been proved to occur by Castellani, who not only found the condition among tea-tasters and coolies working in the dust of tea factories in Ceylon, but also was able to reproduce the disease in guinea-pigs by the daily insufflation of tea dust over a long period of time.

Ikeda was able to produce lesions in the lungs of animals subjected to injections of the *Monilia albicans* either into the blood stream or air passages; from one of his patients at least he isolated a strain which was highly pathogenic.

Broncho-pulmonary moniliasis is a clinical entity and has been recognized as such for thirty years. Fungus infections are known to be of importance as possible causes of severe and even fatal illness giving rise to affections of the nervous or respiratory systems, or even a general systemic invasion. Naturally it cannot be said that the *Monilia* is always the only or even the most important ætiological factor in those cases in which it is demonstrated in the sputum, but it should not be forgotten in cases of obscure or progressive pulmonary disease.

[1] *Archives of Pathology*, July, 1936.

OSTEOPETROSIS OR MARBLE BONES.

OSTEOPETROSIS was first described in 1904 by Albers-Schönberg. It is also known as congenital osteosclerosis, *osteosclerosis fragilis generalisata*, osteosclerotic anæmia, *maladie des os marmoréens*, marble bones and chalky bones. It is another medical mystery whose pathogenesis has so far been elusive. Speculations as to the cause of the disease have not been wanting, but they have not been particularly helpful. No endocrine deficiency has been established and careful investigation has not revealed any general metabolic derangement.

A. H. Pirie considered that an infective cause was more probable than an endocrine disturbance. This suggestion does not explain the familial incidence of the disease. Pirie described four cases in one family. Parental consanguinity has been considered a factor in the pathogenesis. Hey Groves has remarked that the disease is interesting in the comparison it affords with Paget's disease and osteomalacia. In osteopetrosis the long bones are abnormally hard and dense. They are prone to fracture after trivial injury. After such a fracture the bone becomes almost solid, the marrow cavity being filled in by concentric hypertrophy. Fractured bones heal normally, but callus formation is slow and scanty. The densely thickened cortex of the bone cuts more like ivory than bone. Pirie, however, held that the bones were actually softer than usual, and that "chalky" would be a more appropriate designation than "marble".

Herman Wortis has given an account of the Albers-Schönberg disease.[1] He states that since the original description less than eighty additional cases have appeared in the literature. It is obvious that many cases occur which are not recorded, and the rarity of the condition would seem to have been unduly stressed. Australian radiographers are quite familiar with it and encounter instances from time to time. Wortis considers the characteristic evidence of the disorder to be the X ray demonstration of the overgrowth of the cortical part of the bone at the expense of the medullary cavity. The condition is generally most noticeable in the central parts of the pelvic bones, the vertebral bodies, the bones at the base of the skull, the upper end of the femur and the lower ends of the tibia and fibula. The *sella turcica* is usually narrowed. On X ray examination striations consisting of alternating transverse bands of very dense and more normal bone are seen most often in the distal parts of the long bones. Bony trabeculæ may be seen in these bands—a fact which is considered indicative of remissions in the disease. These changes are not usually seen in infancy. Fractures, recent and old, are observed, and generally more fractures are revealed by X rays than are elicited in the history.

The pathological condition is an increase of the hard cortical bone to more than double its normal thickness, with condensation and broadening of the trabeculæ, obliteration of the spongiosa by the encroaching compacta, and crowding of the elements of the marrow, often with replacement of the latter by fibrous tissue. The epiphyseal lines may be ragged and irregular, resulting in malformations, but the periosteum is generally intact. Wortis considers osteopetrosis to be a disturbance of endosteal and endochondral bone metabolism. This may be true, but we are still totally ignorant of the ætiological factors. There has been seen evidence of active or old rickets, but the association was doubtless fortuitous. In the recorded cases endocrine implication has been noted only once. In that case a parathyreoid tumour was present. It is of interest to observe that a condition resembling marble bones has been produced by Selye by parathyreoid injections. Osteopetrosis has been recorded slightly more often in males than in females. It usually occurs in infants and young children. It has been diagnosed *in utero* and in a man aged sixty-eight years.

Possibly the most interesting feature is the multiplicity of secondary manifestations. These include chronic osteomyelitis and epiphyseal deformities, the latter being due to disturbances in endochondral ossification. Children afflicted with this disorder generally attain normal stature unless faulty union of multiple fractures results in stunted growth. Imperfect dentition has been observed. This may be a constitutional defect or may be concerned with faulty calcium metabolism. Dentition may be late and secondary sex characters may be delayed. Patients who survive infancy are usually of good mentality. Hydrocephalus is most often seen in infants and younger children. Although explicit evidence is wanting, this state is considered to be external and to result from interference with the absorption of cerebro-spinal fluid. Bony thickening at the base of the skull causes narrowing of the optic foramina. The optic nerves are subjected to pressure, with destruction of the sensitive temporo-macular bundle and central scotoma, and later implication of the peripheral optic fibres with total blindness. Anæmia occurs, usually hypochromic in type, and immature red cells are seen in the peripheral blood. Changes in the white cells are more variable, but there is generally a leuchæmic picture. Evidence of aplastic anæmia may be a terminal change. Metaplasia of the bone marrow elements, leading to enlargement of lymph glands, liver and spleen, has been observed. This enlargement was thought to be a compensatory mechanism following on implication of the marrow. But study of these extramedullary hæmatogenous structures has shown a lack of blood-forming activity and rather an increase in the intervening connective tissue. Also the condition of the bones and the degree of anæmia have not been in conformity. There is, however, some parallelism between the degree of anæmia and the enlargement of the superficial lymph glands, liver and spleen. It has been suggested that osteopetrosis is a disease entity involving the whole hæmatopoietic system and not a disease of the osseous system with compensatory changes in the more primitive blood-forming organizations. Chemical studies of the diseased bones reveal no marked abnormality. The blood chemistry also is normal, except in secondary or terminal complications. In this disease the parathyreoid glands have been suspected. If these glands are concerned, the lesion must be totally different from that found in association with generalized *osteitis fibrosa cystica*, whose manifestations are completely unlike those of osteopetrosis.

[1] *American Journal of Diseases of Children*, November, 1936.

Abstracts from Current Medical Literature.

PÆDIATRICS.

Rheumatic Nodules Without Carditis.

D. JOAN THOMPSON (*Archives of Disease in Childhood*, August, 1936) reports a case of acute rheumatism in a child in which there was an unusually heavy crop of subcutaneous nodules without any evidence of cardiac involvement. The nodules, apart from vague joint pains, were the only definite sign of rheumatic infection. The patient died of intercurrent acute appendicitis, complicated by metastatic lung abscesses. At autopsy the absence of a cardiac lesion was confirmed.

Nasal Sinusitis in Childhood.

THERE is divided opinion in regard to the frequency and importance of infections of the paranasal sinuses in childhood. James Crooks and A. G. Signy (*Archives of Disease in Childhood*, December, 1936) have investigated the condition in 100 children in two groups. The first group consisted of 24 children among 100 who were undergoing tonsillectomy; the diagnosis of antrum infection was arrived at by routine exploratory puncture. The second group was composed of 76 children in whom the diagnosis of antrum disease was made by clinical methods, including X ray examination. In only nine of those in the first group were the antra clear of pathological content six months after removal of the tonsils and adenoids, or, in other words, 15% of this series had chronically diseased antra. In the second group of 76 children, the tonsils and adenoids had been previously completely removed from 41. The pneumococcus was shown to be the organism most frequently present in antrum infection, the pus which it produced being characteristically thick and yellow-green in colour. The Pfeiffer bacillus was next most frequent. The streptococcus took third place, and would seem to affect the prognosis adversely. The clinical manifestations of the disease consist of anterior or posterior nasal discharge, colds, cough (which may be simply a throat-clearing cough or so violent as to simulate the paroxysms of whooping cough), cervical adenitis, snoring and mouth-breathing, headache (which as a complaint in childhood should always arouse the suspicion of sinusitis), *otitis media*, and systemic manifestations. The diagnosis of sinusitis depends upon recognition of the clinical manifestations, together with certain special examinations. These are inspection of the nose and throat, X ray examination, transillumination, and puncture-aspiration. Radiology is of great value, but can prove equally misleading if the appearances are not correctly interpreted and correlated with the clinical condition. A common cold running its uncomplicated course produces "opaque antra", and allergic swelling of the mucous membrane will show in an X ray film. The authors consider that there can be no doubt that sinusitis in childhood is common. In regard to the relationship between sinusitis and infection of the tonsils and adenoids, they believe that sinusitis is a common cause of inflammation of the adenoids and to a less degree of the tonsils. The first step in the treatment of sinusitis is the treatment of the sinus itself and not the removal of tonsils and adenoids. If the latter are infected and fail to respond to such treatment, they should be removed. If there is a large pad of infected adenoids interfering with respiration, treatment of coexisting sinusitis is not likely to lead to cure until it is removed.

Blood Sugar in Convulsions.

MARGARET B. MACLEAN (*Archives of Disease in Childhood*, October, 1936) has estimated the blood sugar in a series of fifty children admitted to hospital on account of convulsions, an attempt being made to follow the changes occurring in the blood sugar level from the beginning of a convulsion until some hours after it had ceased. The convulsions were due to various causes, such as birth injury, spasmophilia, meningitis, epilepsy or acute infections. It has long been recognized that severe convulsive attacks are followed by depletion of the carbohydrate reserves of the body, and there is confusion of opinion regarding the rôle of hypoglycæmia in the ætiology of convulsions. As the result of her investigation, the author found that during or immediately after a convulsion the blood sugar percentage is frequently raised and that it falls rapidly, sometimes to a low level, remains low for several hours or days, and then rises to normal level. The recognition of this biphasic nature of the change provides a possible explanation of its ætiology. It seems probable that the initial rise is due to the profound disturbance of the central nervous system occasioned by the convulsion, and that this causes mobilization of glucose from glycogen—a condition similar to that produced by Bernard's diabetic puncture. Regarding the subsequent hypoglycæmic phase, there are two possible explanations. It may be that violent muscular exertion uses all the available carbohydrate and that the body tissues are left in a state of carbohydrate depletion, or that the central stimulation, acting as it does on the suprarenals, leads to exhaustion of adrenaline and in the absence of this to the cessation of glycogenolysis. In view of the frequent occurrence of hyperglycæmia prior to the hypoglycæmic phase, it seems probable that in many of the present series of patients there was an initial over-secretion with consequent exhaustion of the store of adrenaline. If this reasoning is correct, the administration of adrenaline should readjust, at any rate temporarily, the level of the blood sugar. This hypothesis was put to the test on two occasions, and the administration of adrenaline during the hypoglycæmic phase was followed by a significant rise in the blood sugar level. The author concludes that, except in cases of true hyperinsulinism, it would appear that hypoglycæmia plays no part in the causation of convulsions of childhood, and that the upset in carbohydrate metabolism is the result and not the cause of the convulsions.

The Tuberculin Test.

H. LOUIS FUERSTMAN (*Archives of Pediatrics*, December, 1936) reviews the present status of the tuberculin test in regard to technique, interpretation and classification of tuberculin reactions and clinical significance. The Mantoux test with Koch's old tuberculin is considered the superior clinical method, although the von Pirquet test will be found more advantageous in younger children. The present status of the clinical significance of the test cannot be overemphasized. It has assumed a conspicuous rôle in epidemiological research and is now considered an important factor in effective tuberculosis control. A positive reaction to tuberculin always implies the existence of tuberculous infection, whichever the type, wherever concealed and whatever the age. A positive tuberculin reaction, except in infancy and early childhood, is not of grave prognostic significance in primary tuberculosis, whether with or without demonstrable X ray lesions, as long as maximum body resistance and optimum environmental conditions are maintained. Every positive reactor, irrespective of lesions evidenced by X rays, should receive well-directed home care, thorough investigation of the source, and a periodic medical follow-up. Failure to produce an intracutaneous reaction, with few exceptions, precludes the presence of tuberculous infection and clinical disease, providing the standard test and proper dosage are employed. Those who do not react, especially among known contacts, should be retested at least annually until a positive result is obtained. Routine exclusion of non-reactors from X ray examination is generally advocated.

ORTHOPÆDIC SURGERY.

Radiological Features of Rheumatoid Arthritis.

A. B. FERGUSON (*The Journal of Bone and Joint Surgery*, April, 1936) describes features characteristic of rheumatoid arthritis. He classifies

this condition as that form of multiple arthritis typically beginning before the age of thirty-five and tending to loss of cartilage and bone at the joints, deformity and eventual ankylosis, emaciation of the patient, elevation of the sedimentation rate of the blood and positive response to the streptococcus and agglutination test. He emphasizes the point that radiographs for the detection of rheumatoid arthritis should depict the soft tissue shadows as clearly as the bone shadows and recommends that the hands, feet, knees and lumbar portion of the spine be examined in every case in which doubt as to the diagnosis exists. The earliest radiographic manifestation of the disease is a systemic decrease in bone density most readily noted in the hands and feet. Exceptions to this rule are those cases in which a disease develops late in life or in those in which gonorrhœa has previously occurred. The author then notes the development of a soft tissue mass about the joint, its presence being evidenced by distension of the capsule or by displacement of adjacent muscle outlines, or displacement of the normal fatty pads. The fusiform effusion at the interphalangeal joints is highly characteristic. As the condition advances there is loss of bone substance which he describes as punched out areas at the junction of bone and cartilage; there is no condensation in the adjacent bone and no haziness due to soft tissue reactions within the bone. Other manifestations of the disease are diminution of the cartilaginous joint space, ankylosis and calcareous lipping at the margins of the joint, the latter being a manifestation of repair. The author discusses the differential diagnosis between this and various other forms of arthritis and believes that the above characteristics of rheumatoid arthritis are not so obvious in the spine owing to the mass of tissue being so great that slight changes are obscured.

Tuberculosis of the Hip in Children.

JOSEPH S. BARR (*The Journal of the American Medical Association*, November 7, 1936) discusses the records of 106 consecutive children admitted to the New England Peabody Home for Crippled Children with the diagnosis of tuberculosis of the hip. In 15% it was later found that an incorrect diagnosis had been made. The remaining cases were accepted as tuberculous from a positive result to a guinea-pig test, from material removed by aspiration or at operation (32%) or from positive evidence of tuberculosis obtained at pathological examination of material removed at operation (19%) or from a positive response to an intradermal test (Mantoux), the positive result being obtained in dilutions of 1 in 1,000 or higher in every instance. Until 1920 the treatment of this condition was expectant, hip splints being commonly used and ambulation being allowed whenever possible. The heliotherapeutic regimen held sway from 1920 to 1930, the progress of the disease being checked every six weeks by X ray and physical examination. In 1930 surgeons began to supplement the Rollier treatment with arthrodesis of the hip. The mortality from tuberculosis of the hip is due in about 47% to tuberculous meningitis, which usually occurs within the first two years after the onset. Arthrodesis of the hip may possibly increase the mortality from this cause, but can hardly lower its incidence. In the remainder the mortality is due to deep-seated secondary pyogenic infection of tuberculous sinuses with resultant amyloid disease and cachexia. The author stresses the fact that tuberculous soft tissue abscesses develop from tuberculous hips in a very high percentage of cases (60%) at some stage in the evolution of the disease, no matter what treatment is used; that they are occasionally absorbed, but usually rupture through the skin; and that the sinuses will heal spontaneously unless they are secondarily infected. The author does not believe that biopsy or joint exploration should be performed in early acute cases, but he recognizes the value of aspiration for obtaining material for examination. He believes that intensive treatment by sunshine produces no better results than open-air treatment with no direct solar irradiation. He describes the technique of arthrodesis, which he believes should not be attempted until the disease process is quiescent. Arthrodesis should not lead to a false sense of security, as a successful fusion prevents the exhibition of the usual danger signal of pain, muscle spasm and increasing deformity usually associated with the spread of the disease. Fusion was successful in 86%, failure being due apparently to extension of the disease to the grafts. Fusion does not effect a cure, but offers the best chance for an arrested disease process to remain quiescent and to gave a stable weight-bearing limb.

Operative versus the Manipulative Treatment of Slipped Femoral Epiphysis.

SAMUEL KLEINBERG AND JOSEPH BUCHMAN (*The Journal of the American Medical Association*, November 7, 1936) discuss the anatomy, physiology and pathology of slipped femoral epiphysis in its relation to treatment. Slipped femoral epiphyses are not fractures in the ordinary sense and should not be treated as such. With the approach of puberty the epiphyseal plate between the head and neck of the femur becomes more oblique, its growth becomes more active, the periosteum around the neck decreases in thickness, the angle between the neck of the femur and the shaft decreases, and there is a relative gain in body weight coincident with an increase of general physical activity. Alterations in any of these factors or in any combination of them may produce a physiological weakness at the epiphyseal plate or an increase in stress and shearing strain on it. The increase in body weight in cases of endocrine dyscrasia may play a prominent part in increasing the strain. When a patient with advanced slipping of the epiphysis is operated upon, it is found that the articular cartilage on the head of the femur is intact, the *ligamentum teres* is practically avascular, the joint capsule is thickened anteriorly and superiorly and the head has become ossified with the neck of the femur. There is a moderate amount of fibrosis in the marrow in the femoral neck, and the epiphyseal plate is very irregular, with zones of myxoid degeneration and fibrous bone; there are also areas of localized bone necrosis and large dilated engorged blood vessels. The authors discuss the various forms of manipulative treatment and express the opinion that it is impossible to secure adequate correction by this method except in the earliest cases. Apparent correction may be obtained by manipulative methods, but is only the result of stretching the capsule, and the deformity recurs after discontinuance of the fixation. The possibility of survival of the head of the femur as a normally-functioning part of the hip mechanism after manipulation is very meagre. Traumatic arthritis, bone atrophy and sometimes fracture are prone to occur after manipulative treatment. The Whitman method of operative treatment makes no provision for the removal or revascularization of the deranged tissue of the epiphyseal plate, which the authors believe is essential to a cure. The more conservative operative procedure of drilling through the neck and epiphyseal plate and into the head of the femur for the purpose of reestablishing circulation and causing premature ossification has been followed by more satisfactory results, but it is necessary to ensure that the drill actually enters the femoral head and does not perforate the articular cartilage. The authors maintain that successful operative treatment must be as atraumatic as possible, must correct the deformity and must reestablish the circulation between the head and neck of the femur. They accomplish this by an operation in which the hip joint is approached through a Smith-Petersen incision, the epiphyseal plate is resected by removing a wedge of bone with the base superiorly and anteriorly, all remnants of the epiphyseal plate are curetted from the distal surface of the head, and the head is fixed to the neck by means of an ivory peg inserted through the *fovea capitalis*. The limb is immobilized for four weeks in plaster, then mobilized for several weeks in a suspension apparatus; the patient is then fitted with a Thomas hip brace and bears no direct weight on the limb until complete revascularization occurs, which takes about eight months.

British Medical Association News.

SCIENTIFIC.

A meeting of the Victorian Branch of the British Medical Association was held at the Children's Hospital, Carlton, Melbourne, on Wednesday, October 21, 1936. The meeting took the form of a series of clinical demonstrations. Part of this report appeared in the issue of March 13, 1937.

Poliomyelitis.

Dr. Jean Macnamara presented two patients suffering from the sequelæ of poliomyelitis.

The first patient was a girl, aged eight years, who had developed poliomyelitis at the age of three years, in March, 1931. She had been in attendance at the out-patient department of the hospital since the onset of the condition. The patient's mother had cooperated with the itinerant physiotherapist in giving the affected muscles the opportunity to achieve the maximum recovery. A muscle chart kept in 1931 had recorded complete paralysis of the muscles of the left thigh and hip, with less severe involvement of the abdominal muscles and the muscles below the left knee. Dr. Macnamara demonstrated the splints and corsets which had been used to prevent deformity. One year after the onset of the disease the tendency to knock-knee, *genu recurvatum* and *pes cavus* had called for care in splinting, but these deformities had been averted. At the time of the meeting the patient was able to walk with a limp, and her back was straight, but she was unable to run or walk on tip-toes, as the calf muscles were not quite normal in power. Dr. Macnamara showed this patient to demonstrate the application of "Elastoplast" at night to correct internal rotation; she also showed the type of boot used to protect a weak calf from stretching. The heel was floated from behind, as in a skier's boot, and then wedged from behind, so that the child walked on a ramp; a piece of spring steel was incorporated in the sole of the boot to oppose the tendency to cavus.

The second patient suffering from poliomyelitis was a boy, aged nineteen months, who had developed poliomyelitis at the age of eleven months, the left facial muscles and the muscles of the right arm being affected. When the patient was seen first, in April, 1936, pronation of the forearm had developed and the fingers and wrist were flexed. Although the muscles of the trunk and lower limbs were not affected, the child was put in a modified double Thomas splint, with an arm-piece to hold the shoulder in abduction, as it had been found by experience that the use of the ambulatory type of deltoid splint induced scoliosis in young children; the use of this latter splint was limited to one hour per day, so that during the remainder of the day the trunk was held straight by the double Thomas splint. Dr. Macnamara said that she had shown this patient in order to demonstrate the type of vulcanite splint, invented by Dr. Kenneth Russell for children with facial paralysis, to hold the upper lip up and the lower lip down, and also to retract the angle of the mouth; a hand splint of "Cellona" had been made for the weakened dorsiflexors of the wrist and finger. Dr. Macnamara said that the recovery of power in facial muscles affected by poliomyelitis was good, provided that the muscles were given the chance of recovery by protection from stretching.

Little's Disease.

Dr. Macnamara also showed a girl, seven years of age, whose mother had suffered from kidney disease during pregnancy; the baby had weighed 1·8 kilograms (four pounds) at birth and had attended the hospital as a dietetic patient during the first year; but no comment had been made concerning spasticity until she reached the age of one year and six months. In the following four years the calf muscles became contracted, the knees and hips flexed, and the forearms pronated; the child was referred to the physiotherapy department in September, 1935. The contractures of the lower limbs were corrected by splinting, and supination of the forearms was obtained, the supine position being more useful to the child than the prone.

Dr. Macnamara then showed a girl, aged ten years and eight months, who was the second child in the family and had been two to three months premature, the weight at birth being one kilogram (two and a quarter pounds). The mother noticed soon after birth that the child was floppy; she did not have any fits or screaming attacks; she did not hold her head up until she was two and a half years old, did not sit up until she was five years old, and could not speak until she was nearly six years old. Two years before the meeting the child seemed anxious to move, and her parents were worried because, when she tried to stand, the thighs adducted to the scissor position, the knees and hips flexed and she stood on tip-toe. They noted that her hands were "facing the wrong way". She was referred to the physiotherapy department twenty-two months before the meeting and had been cared for at home by an itinerant physiotherapist ever since then. When splinting to correct adduction was suggested, the parents had splints made to prevent adduction when the patient was in the recumbent posture; they also had a chair made, and a frame for standing, which held the thighs abducted; splints of Cramer wire with outriggers were provided to correct pronation deformities and to give dorsiflexion to the wrists and fingers. During the two years before the meeting the patient attended a State school in a perambulator, and at the time of the meeting she had reached the fourth grade and was in a class of sixty-four children; she could do mathematics, knit and walk for a short distance by herself, and quite a long distance when supported by someone.

Dr. Macnamara chose this child from a large group of spastic children under the care of the department in order to emphasize two points: (i) The difficulty in assessing mentality in a young spastic child. Three years previously the child could not use her hands, dribbled, could not stand or walk, and had only just learned to speak. Dr. Macnamara said that it was obvious now that the child had higher intelligence than normal. (ii) The mistake of blaming Little's disease for the deformities associated with it. The initial lesions, whatever they might be, were not responsible for the deformities of adduction and internal rotation of the shoulders, pronation of the forearms or flexion of the wrists and fingers. All these deformities were due to positions habitually assumed; they could easily be prevented and, with more difficulty, corrected. As in poliomyelitis, rheumatoid arthritis and after injuries, so in spastic paralysis, prevention of contractures into positions not economically useful should be the main feature of the care provided. Dr. Macnamara said that the improvement in this child's condition had followed on the removal of the architectural handicaps which the years of bad posture had added to the initial damage at or before birth.

Bronchiectasis.

Dr. M. L. Powell showed a boy, aged seven years, who had been well until four and a half years before the meeting, when he had developed whooping cough and then scarlet fever, followed in three months by bronchopneumonia. In the last three years he had had five attacks which had been termed "bronchopneumonia", the last of which had been associated with measles. He was admitted to the hospital on June 4, 1935, because of the pathological condition of the antra, and the radiographic findings of left basal bronchiectasis with collapse of the lower lobe after the injection of lipiodol. Bilateral radical antrostomy was performed and postural treatment instituted; half a cup per morning was the average amount of sputum. The patient had another attack of bronchopneumonia as well as *otitis media* during that period. The prognosis was regarded as grave, unless lobectomy could be successfully performed. Dr. Powell said that the case illustrated three points: (i) the severe respiratory episodes so commonly found in bronchiectasis; (ii) the atelectasis of the lower lobe, which might possibly be congenital; and (iii) the true indications for lobectomy.

Hydatid Cyst of the Brain.

Another patient shown by Dr. Powell was a boy who had been admitted to the Children's Hospital in December, 1935, with a history of a convulsion three years earlier, a second convulsion two years later, and a third one month before admission. It was thought that the fit had begun on the right side of the face and spread down the body; the child had been unconscious and the sphincters had been relaxed, but no aura or residual pareses had been noted. He had had headaches for twelve months, and for six months his eyesight had been failing; he had had pneumonia and empyema of the left lung eight months prior to his admission to hospital.

On examination the boy was found to be drowsy, but gave a fair degree of cooperation. The visual acuity in the right eye was $^6/_9$ and in the left $^6/_{12}$. The examination of the fields of vision was of great value and showed a pronounced right homonymous hemianopia, with a suggestion of a quadrantic loss in the lower quadrant at the onset; the left field was much more involved than the right; there was a secondary optic atrophy. The central nervous system otherwise showed no abnormality. The pressure of the cerebro-spinal fluid was 250 milligrammes; it was otherwise normal; there was no reaction to the Wassermann test, but the hydatid complement fixation test gave a positive result. A skiagram of the skull revealed separated sutures; the *sella turcica* was normal. The condition was regarded as a cerebral hydatid cyst, probably in the upper part of the left temporal lobe.

At operation, performed by Dr. R. M. Downes on December 17, 1936, through a left temporal flap, the brain appeared normal, but exploration of the left temporal lobe disclosed a large hydatid cyst, the size of an orange, extending back into the occipital lobe. The endocyst was removed and irrigation with saline solution carried out. Dr. Powell said that the patient had done well; the left field was still contracted and visual acuity was grossly impaired, but the right field was full, with a $^6/_6$ vision. The prognosis was guarded, because of the likelihood of further development of cysts.

Another patient shown by Dr. Powell, a girl aged nine years, had been knocked down by a motor car three and a half years previously. She did not become unconscious, but was drowsy and irritable and screamed for some time; she also vomited several times and suffered for several hours from retrograde amnesia. The child was observed in the out-patient department for six weeks and then returned to school. She complained after a few days of diplopia, and the other children called her "cock eye". She was admitted to hospital eight weeks after the accident, and on examination appeared to be a bright and happy child. The patient was found to have right lateral rectus palsy; the visual acuity in both eyes was $^6/_6$, but there was a slight general contraction of both fields; gross papilloedema with macular fan-exudate was present on examination of each *fundus oculi*; the cerebro-spinal fluid was normal, and in a skiagram of the skull nothing abnormal was detected; otherwise the central nervous system was normal. Dr. Powell said that it was largely owing to the excellent general condition and maintenance of $^6/_6$ vision that it was decided to observe the patient for a time and to do nothing active. The papilloedema had subsided over a period of three and a half years, the exudates had practically disappeared, and, in spite of a certain amount of pallor of the disks, particularly the left, the child's vision had remained unimpaired. Dr. Powell said that it was of interest to note that at one period albuminuric retinitis was diagnosed by another observer and a hopeless prognosis given.

Congenital Deformities.

DR. H. DOUGLAS STEPHENS showed several types of congenital deformities. Cases of single incomplete, single complete, and double hare lips were shown before operation, and a comparable series was shown after a repair had been effected. Some cases illustrating various types of cleft palate before and after operation were also exhibited. An early operation was advocated before the patient was four months of age in cleft lip, and Dr. Stephens said that cleft palate should be repaired as a rule when the child was between two and three years old.

An infant was shown with accessory auricles and several oral lobules of skin along the line of the maxillary and mandibular portions of the first arch. Dr. Stephens also showed two infants with double *talipes equinovarus*, who illustrated the effect of two months' manipulative treatment; they both furnished examples of a severe degree of the deformity, and forcible reduction had been commenced in both instances during the first week of life and continued twice a week for two months; strapping had been used to maintain the correction; in both infants complete correction could be produced by light pressure of the finger.

Dr. Stephens also showed an infant, aged ten and a half months, with congenital dislocation of the left hip joint; this case was unusual in that there was already half an inch of shortening, and the opposite hip joint had given radiological evidence of instability, although no dislocation had as yet occurred. Another girl, aged twelve years, was operated on by Dr. Stephens, when she was four weeks old, for lumbo-sacral *spina bifida*; records stated that it was of the meningo-myelocele type; the child grew and developed mentally and physically, and had no urinary incontinence. Dr. Stephens said that symmetrical deformities of the feet in this patient developed during the three years preceding the meeting, and that at the time of the meeting she presented the characteristic features of second degree claw-feet. Dr. Stephens said that the high incidence of that deformity in *spina bifida occulta* suggested that the cause in this case might be gradual stretching of nerve fibres adherent to the scar, consequent on the continued growth of the bony spine without corresponding lengthening of the spinal marrow.

Another case shown by Dr. Stephens was one of diaphragmatic hernia, occurring in a boy ten years of age, who was run over by a motor car in October, 1936. He was admitted to hospital presenting the signs and symptoms of severe shock—traumatic cyanosis with purpuric extravasations and petechiæ over the scalp, face and neck, as well as fracture of the left femur. In nine days the patient's purpuric rash had disappeared and the fractured femur was uniting in good position in extension. The heart was displaced well to the right of the sternum; the base of the left side of the chest was dull and intestinal sounds were well heard over that area. A skiagram demonstrated the presence of a herniation involving the stomach and small intestine through the left side of the diaphragm. Dr. Stephens said that the boy had not vomited at all, and his previous history gave no indication that the hernia had been present before the accident. Dr. Stephens advocated early operation.

Pneumococcal Arthritis.

Dr. Stephens also showed a girl, aged ten years, upon whom he had operated, when she was six months old, for pneumococcal arthritis of the left hip joint; gross destruction of the head of the femur followed, and the later history revealed a pathological dislocation of severe degree. A further operation (König) was carried out in April, 1936, and X ray pictures showed a satisfactory shelf of bone.

Unique Complication of Osteomyelitis of the Hip Joint.

Another patient shown by Dr. Stephens was a boy, aged ten years, who had developed acute osteomyelitis of the right femoral neck and suppurative arthritis of the joint of the same side in June, 1935. He had been treated in the country in the recumbent posture and without operation. He was admitted to the hospital in February, 1936, with ankylosis of the right hip joint, a discharging sinus near the right antero-superior iliac spine, gross pyuria and a recent osteomyelitis of the eighth left rib. The swelling and pain occasioned by the rib condition had made him attend the hospital. Rib resection was carried out in March; cystoscopy failed because of obstruction to the passage of the instrument at the bulbous urethra. Skiagrams revealed spicules of bone extending from the pelvic aspect of the base of the right acetabulum towards and

apparently impinging on the bladder, if not inside it. The patient returned to the country as soon as the rib resection healed, without undergoing treatment for the urethral obstruction, but came back in October on account of some pain and swelling in the perineum. Dr. Stephens said that a radio-opaque object was noted about the urethral swelling and site of obstruction to the passage of the catheter. In view of the long period of recumbency, the question of stone was considered possible, though the spicules of bone from the osteomyelitis seemed most likely to be responsible. The boy appeared to pass urine without any discomfort, but only a very small bougie could be introduced into the bladder past the obstruction. External urethrotomy was carried out on October 15, 1936, and a bony sequestrum removed; cystoscopy through the perineal wound revealed a small ulcer in the right lateral wall of the bladder, possibly due to further spicules of bone. The urethral orifices were clear and the wound healed rapidly. Dr. Stephens said that at the time of the meeting, though pus cells were still present in the urine, the patient was able to pass it normally.

Pathological Specimens.

Dr. Reginald Webster demonstrated a series of pathological specimens and photomicrographs. He showed a specimen illustrating the occurrence of peptic pyloric ulcer in infancy. The child died at the age of four months, having exhibited persistent vomiting, sometimes projectile in character, for three months prior to admission to the Children's Hospital. Hypertrophic stenosis of the pylorus had been strongly suspected, but the diagnosis had not been established. The appearance of the edge of the ulcer suggested a degree of chronicity, as did the indurated base. Dr. Webster said that an informative article on the subject of gastric and duodenal ulcer in infancy was to be found in *Archives of Pediatrics*, Volume LI, Number 10.

Dr. Webster then showed specimens illustrating duodenal stenosis and atresia, œsophageal atresia, tracheo-œsophageal fistula, and hypertrophic stenosis of the pylorus. One specimen of the last-named group was secured from an infant who died eleven hours after birth. Two specimens of tumour of the brain were also shown, one the commonly occurring cerebellar medulloblastoma and the other a suprasellar craniopharyngioma; the histology of each was demonstrated from microphotographs.

Dr. Webster also showed the lower lobe of a right lung that had been removed on account of the presence of a large pulmonary abscess. The abscess was surrounded by dense fibrous tissue of almost cartilaginous hardness, and fibrosis and subsidiary foci of suppuration had completely disorganized the whole lobe. The boy from whom the specimen had been removed was a private patient of Dr. Ian J. Wood and of Dr. E. Hughes Jones. The patient had made a good recovery after a somewhat protracted convalescence, and had been presented at a meeting of the Melbourne Pædiatric Society on August 12, 1936.

Another specimen obtained by operative lobectomy was the lower lobe of the right lung of a little girl, upon whom Dr. J. G. Whitaker operated for bronchiectasis, which by exhaustive investigation had been shown to be limited to this lobe. This patient had already been shown by Dr. Whitaker.

In a comprehensive series of photomicrographs, Dr. Webster demonstrated the widespread inflammatory reaction and disorganization of pulmonary tissue in both products of operative lobectomy.

Dr. Webster then showed a striking specimen of a right-sided adrenal neuroblastoma from which a uniform permeation of the liver by neoplastic cells had resulted in an enormous enlargement of the liver. Dr. Webster said that the degree of hepatomegaly was unparalleled in his experience and, in its perfect uniformity and symmetry, was such as was produced by unilobular cirrhosis or leuchæmic infiltration. From this specimen it would be reasonable to conclude that neoplastic cells had been sown throughout the liver via the radicles of the portal vein, and he could see no other explanation of the unique specimen. At the *post mortem* examination metastases had been found also in the right and left orbital cavities. In a series of photomicrographs relating to this specimen, low-power fields of the primary tumour showed merely a highly malignant undifferentiated neoplasm, but excellent examples of the typical "rosettes" of neuroblastoma were demonstrated in photographs of high-power fields. A photomicrograph of a leuchæmic liver was placed against that of the liver in this specimen for comparison.

Other specimens included in Dr. Webster's demonstration were a number relating to tuberculosis in childhood, and one illustrating complete transposition of the viscera. Photomicrographs were shown of (i) hydatid scolex from a cerebral cyst, the patient from whom it was secured having made a good recovery, and (ii) *Treponema pallidum* as seen in a Fontana preparation obtained from a primary vulval sore in a girl aged eight years.

Ascorbic Acid.

Dr. Stanley W. Williams demonstrated some of the recent advances in the investigation of vitamin *C*. Vitamin *C* was present in fresh fruit and vegetables and had been isolated and prepared synthetically as ascorbic acid. Ascorbic acid could be measured in the urine, and a series of results obtained for normal Melbourne children was shown. The method of titration was demonstrated by means of the change shown in a measured amount of special dye when urine was run in from a burette. Finally, the clinical value of these tests and the rate of excretion of ascorbic acid in the urine after a test dose had been taken by mouth were indicated.

A meeting of the Victorian Branch of the British Medical Association was held at the Dental Hospital, 193, Spring Street, Melbourne, on October 7, 1936. The meeting took the form of a series of demonstrations by the medical and dental members of the staff of the Dental Hospital.

Fractures of the Jaws.

Professor A. Amies and Dr. F. A. Aird demonstrated a comprehensive range of fractures of the jaws by means of models and skiagrams. The technique for treatment by immobilization of the parts by means of splints and interdental wiring was demonstrated on plaster casts. The method of adjusting the fractured parts so as to maintain the teeth in their original position was demonstrated, as also was the construction of splints with cast silver and sheet metal. First aid helps were also demonstrated, such as a bandage of rubber dam pinned to a surgeon's cap; this supplanted the old four-tail bandage, and the tension of the rubber dam helped to reduce the fracture.

Another feature of the demonstration was a display of models illustrating various types of fractures treated at Sidcupp Hospital with replicas of the splints used. This exhibit was lent by Dr. Fay Maclure.

Oral Sepsis.

Dr. Ewen Downie discussed oral sepsis and showed some patients and also some microscopic preparations and plates to illustrate the bacteriology.

Dr. Downie showed a female patient, aged forty years, who had attended the hospital in October, 1934, with generalized aches and pains in the hands and feet of six months' duration. Periarticular spindle swelling of the third finger of the right hand was present at the time of examination, which, except for an apical abscess in the right lower molar tooth, revealed no abnormality. Extraction of the tooth was carried out, and cultures from the apex and the socket yielded pure cultures of *Streptococcus viridans*. Vaccine therapy had been associated with local reactions in various joints. Maintenance of small doses of vaccine over three months resulted in complete subsidence of all lesions.

Another patient shown by Dr. Downie was a female, aged sixty years, who had attended the hospital first in December, 1935, with osteoarthritis of the knees, which had been non-progressive for years. One lower central

incisor tooth had been extracted because of a neuralgic pain in the jaw for some months. The patient, on awaking from gas anæsthesia, had felt an intense pain in the knee; she had been in bed for one week with the left knee swollen and painful; and it had remained like that for ten weeks, despite rest and symptomatic treatment, though the site of the extraction had apparently healed. A skiagram revealed a fragment of root, but the other teeth were quite healthy. In March, 1936, the jaw was reopened and the root fragment was removed. Culture yielded *Staphylococcus aureus* and pneumococci. The patient was treated with vaccine therapy for three months with complete subsidence of the local inflammatory condition in the knee.

Dr. Downie also showed a male patient, aged thirty-four years, who had attended the hospital in March, 1933, suffering from loss of energy for two years and dyspeptic symptoms for some length of time. Examination at that time revealed no abnormality, and a skiagram taken of the alimentary canal showed no abnormalities; the teeth were apparently healthy. A test meal revealed a hyperchlorhydria climbing curve. The patient's condition improved with continuous alkalinization, but recurrent dyspepsia was noticed if he was not on a careful diet. In October, 1934, two teeth were extracted and the dyspepsia returned for two or three weeks; a year later the patient was still feeling tired and depressed, was losing weight, and had further attacks of dyspepsia, though after radiological examination the remaining teeth had been reported perfectly healthy by the dentist. Two months later all the patient's teeth were extracted. Two weeks after extraction all trace of dyspepsia had disappeared; the test meal gave findings that were within normal limits and the patient had gained weight.

Dr. Downie also showed a female patient, aged sixty-two years, who had attended the hospital in December, 1934, complaining of an aching pain in the region of the right hip and down the back of the right leg of two months' duration; the pain had been exaggerated by the use of rubber corsets. The patient had had nine infected teeth removed at once, and within twenty-four hours a flare-up of right-sided sciatica occurred, necessitating frequent injections of morphine. A gradual subsidence of symptoms took place over a period of four weeks and eventually complete relief was obtained. In June, 1936, the patient had had no return of the sciatic pain.

Another patient shown by Dr. Downie was a woman, aged thirty-eight years, who had reported at the hospital in December, 1935, complaining of increasing tiredness and pallor of one or two years' duration, associated with loss of weight. Examination revealed no abnormality, except that the red blood cells numbered 3,250,000 per cubic millimetre, the white blood cells were estimated at 12,000 per cubic millimetre, and the hæmoglobin value was 50%, showing a typical secondary anæmia; gross pyorrhœa was present. The dental surgeon had advised the removal of all the teeth and stated that the mouth was in a very unhealthy condition. The patient's teeth were extracted two at a time at intervals of ten days and a subsidence of all symptoms occurred. The condition of the blood showed considerable improvement in June, 1936; red blood cells were estimated at 4,250,000 per cubic millimetre, the white cells numbered 7,600 per cubic millimetre; the hæmoglobin value had risen to 95% and the film was normal.

Dr. Downie stated that the forms of oral sepsis which might act as foci of infection included gingivitis, pyorrhœa, periapical lesions, bone infections, unerupted teeth, residual infections, Vincent's angina, and infected odontomes or cysts. The factors influencing the effects of focal sepsis were: the type of lesion, and whether it was open or closed; the virulence and number of organisms; the nature, amount and rate of toxic absorption; and the resistance of the patient. Focal sepsis might actually initiate a disease process or be responsible for secondary infection, or it might lower the general resistance of the patient and predispose to other infections or prolong recovery therefrom or throw added strain on damaged or worn tissues.

Dr. Downie classified the methods of spread from a focus under four headings: (i) Direct spread. In periapical infection antral involvement might occur by bony rarefaction or by toxic products acting on bone; Vincent's angina might lead to infection of the tonsils or of the respiratory tract; osteomyelitis of the jaw might spread to produce Ludwig's angina. (ii) Spread by the natural passages. By infection through the trachea, laryngitis, pneumonia or lung abscess might be set up; infection through the Eustachian tube might cause tubal catarrh or *otitis media*; or as the result of ingestion, gastritis, peptic ulcer, cholecystitis, colitis or anæmia might be caused. (iii) By the blood stream all or any of the complications of toxæmia or septicæmia were possible. (iv) Spread through the lymphatic channels might set up cervical adenitis or osteomyelitis and submaxillary cellulitis.

In considering the bacteriology of oral focal infections, Dr. Downie, after mentioning that mouth diplococci and spirochætes were usually saprophytic, but that they were also potential pathogens, stressed the importance of streptococci. Though streptococci were often of low virulence and might be present for a long period of time without directing attention to any local lesion in the mouth, they were the bacteria that were most frequently found. The *Streptococcus hæmolyticus* was often associated with some degree of secondary anæmia, and the *Streptococcus viridans* was more usually found in association with arthritic lesions. Less commonly, other strains of streptococci, staphylococci or other organisms, such as pathogenic anaerobes, were found, and on occasions anaerobes might represent the sole cultural finding. With the removal of the focus no effect might be detectable if the focus was not the cause of the disease or if the disease remained established in other tissues. Indeed, exacerbation of the symptoms might follow if the focus had sensitized the patient to infection or if its removal had caused a temporary flooding of the circulation with toxins. Cure would eventuate in some cases either dramatically or gradually, and might be spontaneous or be obtained only with the assistance of vaccines and general measures. Dr. Downie emphasized the importance of gradual removal of the focus, if possible. He also pointed out that careful and thorough summation of the evidence was necessary in the evaluation of the importance of the focus as an agent in the production of disease; vaccine therapy undertaken without due regard to this careful summation of evidence was likely to be fraught with negative or inconclusive results. For the successful employment of vaccines he considered that it must be established, by the application of Koch's postulates, that the organisms found in the focus were likely to have caused the remote lesion; the technique of extraction and of obtaining the material for culture must be above reproach; and the vaccine should be given in small and oft-repeated doses. It was unwise to increase the dosage rapidly, and it was unsound to increase it in the presence of any suggestion of a consequent local or general reaction.

In conclusion, Dr. Downie described the technique of collecting material for culture from a tooth and its socket. After the usual technique for the production of local analgesia had been used, a cheek retractor was inserted, the crown of the tooth and the surrounding mucous membrane were painted with tincture of iodine, and the gingival trough was flooded with the solution. This was allowed to dry and then the process was repeated. After the beaks of the forceps had been flamed three times with alcohol the tooth was extracted with as little buccal or lingual deflection as possible, and the apex of the root was not allowed to touch the lip of the socket. While the tooth was held in the forceps, cultures were made immediately on a blood agar plate, on a broth medium and by inoculation of a broth tube. By means of a flamed platinum loop similar cultures were made from the depth of the socket, and the addition of a small amount of blood was an advantage (pathogen-selective culture).

Naso-Pharyngeal Atresia following Tonsillectomy.

DR. THOMAS G. MILLAR demonstrated a case of naso-pharyngeal atresia in which a plastic operation had been performed. Tonsillectomy had been performed elsewhere in April, 1936, and in June the patient found that she had

lost her nasal airway and was having difficulty with swallowing and speech. Examination revealed gross scarring of the pharynx, and the soft palate was adherent to the posterior pharyngeal wall. In collaboration with Professor Amies a denture had been constructed with two rubber hooks attached to its posterior margin in such a way that the soft palate would be held forward after operation. In July the soft palate was dissected from the pharyngeal wall and new pillars were fashioned. Subsequently the patient wore the denture for ten days. Dr. Millar said that the result obtained was satisfactory and that the only symptom noted by the patient at the time of the meeting was that care was necessary in swallowing fluids.

Dental Aids in Medical Practice.

DR. W. J. TUCKFIELD and MR. J. M. WARK demonstrated various dental aids to medical practice.

A facial paralysis hook consisted of a platinized gold wire which was attached either to a molar tooth or to a denture. It passed forward and curved round the angle of the mouth to give the necessary support to the muscles of the cheek. Dentures were demonstrated for carrying radon needles for the treatment of malignant epulis, and a similar type of apparatus designed by Dr. Cuscaden for carcinoma of the *cervix uteri* was shown. Other exhibits included dental hypodermic syringes and needles.

Demonstrations were given of the correct method of mixing plaster of Paris, and it was pointed out that the results would be better if medical practitioners did not add salt as an accelerating agent, but prepared a thicker plaster mixture; the setting time would be the same and the final product much stronger. If an accelerating agent had to be used, potassium sulphate was strongly advised in preference to salt.

Dr. Tuckfield and Mr. Wark also showed a series of facial masks depicting various pathological conditions. The masks shown were of a special wax instead of the usual plaster of Paris; they were coloured in transparent oils and gave a very natural appearance. Several of the masks were used to demonstrate methods of applying artificial noses, ears *et cetera* for use in conditions which were beyond the aid of plastic surgery.

A description of the making of facial masks was also given. An impression was taken of the whole face by smearing on it a gelatinous material which was allowed to set; before removal it was covered with plaster to give support. Wax was then poured into the mould layer by layer, and finally a core of plaster was added.

Soft rubber sucking plates for cleft palate babies were also discussed, and the various types of obturators and cast splints for fractures were on view. Dentures were exhibited showing the evolution of the earliest type, which was carved from an ivory block, to the modern materials, which might be of a translucent plastic base or a fused porcelain.

Periodontia.

DR. R. G. WILLIAMS showed three cases of periodontia.

A female patient, aged eleven years, who had not been treated, was suffering from gingivitis of the lower jaw; the condition was at an early stage and the papillæ between the anterior teeth showed slight hypertrophy; in the upper jaw the condition was more advanced.

Another patient, a male, aged twenty-five years, showed the successful result of treatment of an advanced stage of pyorrhœa.

Dr. Williams also showed a male patient, aged fifty-four years, demonstrating the result obtained from treatment when there had been a still further destruction of the supporting structures of the teeth than in the second patient shown.

Skiagrams were shown in each case, and the ætiology, pathology and treatment of periodontal conditions were discussed.

Conservative Dental Surgery.

MR. C. H. DOWN demonstrated in the operative technique department, with the aid of sketches and models, the procedure of preparation and filling of cavities in teeth. The injury that could be caused to the interdental soft tissues and alveolar bone by incorrectly contoured fillings was also explained. The sketches and models demonstrated the difficulties and dangers of root canal fillings and diseases of the jaw bone produced by errors in technique.

Radiology.

DR. JOHN O'SULLIVAN gave a demonstration of radiographic films and lantern slides.

Films illustrating the development of a lung abscess following on the aspiration of an extracted molar tooth were shown, and its localization by radiographic films was demonstrated. The subsequent development of bronchiectasis in spite of the removal of the molar tooth by the bronchoscopic method was demonstrated by means of bronchial-outlining with lipiodol. Dr. O'Sullivan demonstrated his own technique. He also stressed the importance of immediate radiological examination of the chest when aspiration of a tooth into the lung was suspected. Examples of unerupted wisdom teeth, illustrating impaction and associated osteomyelitis, were also shown. Dr. O'Sullivan displayed a series of radiographs exemplifying dental infection, adamantioma, dental and dentigerous cysts, giant-cell tumours of the jaw, *osteitis fibrosa* and *leontiasis ossea*.

Different types of jaw injuries were also explained, and the importance of taking routine views of the condyles on both sides in all cases of injury to the jaw was emphasized. A series of films showing fractures in the region of the *symphysis menti* and through both condyles, with marked tilting, was shown. Dr. O'Sullivan also demonstrated a special technique for the radiography of this region.

Deformities of Mandible and Maxilla.

DR. K. T. ADAMSON demonstrated by a series of plaster casts the classification of deformities of the mandible and maxilla for the purpose of treatment. He said that from a dental point of view these were divided into three classes, depending on the development of the mandible and its subsequent relation to the maxilla and skull anatomy. Class I had the mandible normally developed anteroposteriorly (the body of the mandible). Class II had the mandible under-developed and, as a result, posterior to the skull anatomy; and Class III had a hypertrophied mandible, and hence one that was anterior in relation to the upper jaw and skull anatomy.

Dr. Adamson also exhibited models of patients before and after treatment, and it was shown that the benefits derived from treatment of their deformities from a medical viewpoint were as follows: (i) The establishment of an occlusion which would enable the patient properly to masticate food; this was quite impossible in many cases before treatment. Food swallowed in a semi-chewed condition must lead eventually to some irritation of the alimentary tract. (ii) The development of the palate and, as a result, an improved growth in the nasal cavity and improved breathing. (iii) Psychological factors. These were of importance, particularly in the gross deformities, when patients became extremely sensitive about their appearance. Dr. Adamson said that a correction in these cases gave the patients a new outlook on life.

NOMINATIONS AND ELECTIONS.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Abbie, Andrew Arthur, M.B., B.S., 1929, M.D., 1936 (Univ. Sydney), 790, Military Road, Mosman.
Pardey, Geoffrey James, M.B., B.S., 1928 (Univ. Melbourne), Prince of Wales Hospital, Randwick.

Babbage, Neville Francis, M.B., B.S., 1935 (Univ. Sydney), 4, Roseville Avenue, Roseville.
Flashman, James Alan Froude, M.B., B.S., 1936 (Univ. Sydney), 297A, Edgecliff Road, Woollahra.
Godfrey, Norman George, M.B., B.S., 1936 (Univ. Sydney), Sydney Hospital, Sydney.
Parker, Alexander Hayward, M.B., B.S., 1936 (Univ. Sydney), Bulli.
White, Weeks, M.B., B.S., 1937 (Univ. Sydney), 164, Livingstone Road, Marrickville.

The undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Dorsch, Carl Emil, M.B., B.S., 1922 (Edinburgh), Berri.
Swan, Charles Spencer, M.B., B.S., 1935 (Univ. Adelaide), 25, Austral Terrace, Malvern.
Ambrose, Betty Rosslyn, M.B., B.S., 1936 (Univ. Adelaide), Adelaide Hospital, Adelaide.

The undermentioned have been elected members of the South Australian Branch of the British Medical Association:

Frayne, John Felix, M.B., B.S., 1936 (Univ. Adelaide), 123, Cambridge Terrace, Malvern.
Hurst, Edward Weston, M.B., Ch.B., 1922 (Birmingham), M.D., D.Sc., M.R.C.P., Government Bacteriological Laboratory, Adelaide.
Ray, John, M.B., B.S., 1936 (Univ. Adelaide), 242, Portrush Road, Glen Osmond.
Welch, Frank Edison, M.B., B.S., 1936 (Univ. Adelaide), 228, Glen Osmond Road, Fullarton Estate.
White, Joan Hazel, M.B., B.S., 1936 (Univ. Adelaide), Tranmere Terrace, Tranmere.
Rice, Vincent de Paul Lawrence, M.B., B.S., 1933 (Univ. Adelaide), Adelaide Hospital, Adelaide.

Medical Societies.

THE MEDICAL DEFENCE SOCIETY OF QUEENSLAND.

THE annual meeting of the Medical Defence Society of Queensland was held at the British Medical Association Building, 35, Adelaide Street, Brisbane, on February 4, 1937, DR. ALEX. MARKS, the President, in the chair.

Annual Report and Financial Statement.

The annual report of the Council and the financial statement for the year ended December 31, 1936, were presented and adopted on the motion of the President, seconded by Dr. Robertson.

The annual report is as follows:

The Council has pleasure in presenting the following report of the Medical Defence Society of Queensland for the year ended December 31, 1936.

Membership.

The total membership of the Society is 363, exclusive of 11 members whose subscription for the current year had not been paid by December 31, 1936.

Our gains have been: new members, 14; reinstated members, 6; making a total of 20. Our losses have been: 9 members left the State, 2 deceased, and 11 unfinancial, making a total of 22. As last year's membership was 365, the number of members this year shows a loss of 2.

We regret to record the deaths of the following members: Dr. H. de Pinna, of Marburg, and Dr. J. P. O'Hara, of Jandowae.

Office-Bearers and Council Elected for 1936.

President: Dr. A. H. Marks.
Vice-President: Dr. Donald A. Cameron.
Honorary Secretary: Dr. Neville G. Sutton.
Honorary Treasurer: Dr. R. G. Quinn.
Councillors: Dr. A. G. Anderson, Dr. A. B. Carvosso, Dr. G. W. Macartney, Dr. S. F. McDonald, Dr. W. N. Robertson, Dr. Kenneth Wilson, Dr. H. S. Waters.

Medico-Legal.

During the year eight cases were submitted to the Council for advice or assistance. A verdict in favour of the member was given in two cases which went to court. In a third case, at the suggestion of the judge, the parties conferred with a view to settlement, and as a result the plaintiff withdrew all charges of negligence and defamation and agreed to judgement being entered for the doctor.

Finance.

The total assets of the Society are £4,220 14s., invested mainly in Australian consolidated inscribed stock. The total expenditure amounted to £56 2s. 8d., but as against this a bill of costs for a legal action is anticipated to approximate £250, of which amount it is hoped to recover £105 from the plaintiff. The sum of £211 12s. 7d. was received from entrance fees and subscriptions, and the income from investments totalled £158 15s. 9d. The year's operations have resulted in a credit balance of £316 8s. 8d.

Election of Office-Bearers.

Dr. Alex. H. Marks and Dr. R. G. Quinn, who had retired in conformity with the by-laws of the Society, were unanimously reelected.

Messrs. R. G. Groom and Company, Chartered Accountants (Aust.), were reelected auditors for the ensuing year.

Correspondence.

PROTEIN SHOCK IN GONORRHŒAL OPHTHALMIA.

SIR: Dr. Clifford Colvin and Dr. Granville Waddy, in the journals of January 16 and February 13 respectively, open an interesting question in regard to the treatment of acute conjunctival infections generally, but especially of the new-born. Dr. Waddy strongly urges the value of protein shock as achieved by milk injections, and also advocates the use of acriflavine, with some caution as to possible irritation therefrom. He finds it hard to understand why others hesitate to recommend the milk injections, thus challenging a reply. May I be permitted to venture some reasons for disagreeing with him more or less completely?

Firstly, in regard to protein shock therapy. This may be a desirable proceeding in chronic infections where the invading organism is thought to have become entrenched and invulnerable to ordinary reactions, or where the patient has not been able to produce the needed antibodies, but surely such cannot be maintained where there is an acute infection with a severe local and perhaps general reaction. When the patient is reacting well to the invading organism and is putting up a proper natural fight against it, is it at all likely that the injection of foreign protein into the system will do any good, and is it incapable of doing any harm? The baby is already battling to establish its footing in a very uncertain world; may not protein shock or other violent reaction be bad for it at the time, or perhaps be liable to render it unduly sensitive to proteins on which it must depend for its future sustenance?

At best, milk injection is only a shot in the dark. It is certainly quite unnecessary in the great majority, if not all, cases. Why, then, advocate it as a routine treatment?

The second item is the use of acriflavine or other antiseptic. In a swollen conjunctiva it is physically impos-

sible for any antiseptic to get at and kill the bacteria, though the antiseptic can get at and damage the corneal epithelium, the preservation of which is our chief anxiety. If only we can preserve the cornea from harm we know that the conjunctiva itself will eventually defeat the infection and the eye become normal. It should therefore be our function to eliminate so far as possible all the irritating and poisonous discharge from contact with the cornea while avoiding instilling anything itself irritating or harmful to the very delicate infant corneal epithelium.

In Brisbane, cases of gonococcal *ophthalmia neonatorum* are commendably few. At the Infectious Diseases Hospital, to which most of them are sent, I have only had to deal with twelve cases in the last five years. Some, however, were severe ones. Acting on the above first principles, lavage with boracic acid lotion, as frequently as required, was the only treatment given. Not one eye which had a clear cornea on admission developed an ulcer, and all left hospital with uninjured sight. Only those admitted with ulcers already developed suffered any harm to their vision.

Probably normal saline would have achieved the same excellent result, which is due to the unremitting care of the Matron, Miss Grant, and her staff. Without the splendid and tireless nursing it is unlikely that the success would have been achieved by any method. But I happen to know that when a new case is admitted the Matron's first anxiety is to get in touch with me as honorary so that boracic treatment alone will be ordered and the more vigorous methods of the recently graduated resident staff be countermanded. She has had experience of other methods.

Perhaps boracic lavage is too simple a procedure to find favour in ophthalmology!

Yours, etc.,

E. O. Marks.

Brisbane,
February 19, 1937.

MENSTRUAL TOWELS.

Sir: The following note by my son, Dr. Lyndal Worrall, of London, refers to a matter of great importance, worthy of immediate investigation and report by the Board of Health or independent pathologist. Pulvertaft is the pathologist to the Westminster Hospital, London.

> Pulvertaft has made a most interesting discovery, which he has described recently to the Royal Society of Medicine. It is that practically all menstrual towels, which are packed with wood pulp, contain virulent germs, including streptococci and *Bacillus welchii*. It is possible therefore that a proportion of cases of puerperal septicæmia are due to a previous inculcation in the vagina of organisms derived from a damming back of the menstrual flow by infected towels. When the presence of the organisms coincides with lowered resistance, septicæmia then occurs.

Yours, etc.,

Ralph Worrall.

233, Macquarie Street,
Sydney,
February 22, 1937.

HISTIDINE AND COAGULATION OF THE BLOOD.

Sir: In reply to the letter by "Physician" in this journal for February 27, I can only say that so far I have not measured the effect of histidine in clotting time, except in cases of duodenal ulcer and in normal human adults.

A similar effect has been reported some years since for benzidine compounds containing the naphthalene nucleus and for certain azo dyes. In fact, those observations led to the manufacture of "Nordmark" as a therapeutic accelerator of coagulation. The increased fibrinogen content of the blood appears to be responsible for its action. In hæmophilia, however, where, owing to some genetic cause, the platelets do not rapidly provide "thrombokinase", clotting is delayed in spite of adequate prothrombin and fibrinogen as precursors of the fibrin. There is no a priori reason why histidine should influence hæmophilia, although experiment alone could decide the point, but for practical purposes the use of preparations supplying the defective physiological factor is indicated, and among these "Coagulen" Ciba would appear to be useful, not only in hæmophilia, but in external hæmorrhage.

I would except, on my own limited experience, thrombopenic purpura where it is ineffective, because the trouble appears to be due to a failure of the capillary endothelium and not to defective coagulation properties of the blood.

Yours, etc.,

C. Stanton Hicks.

Department of Pharmacology and Human Physiology,
The University of Adelaide,
Adelaide,
March 3, 1937.

THE OCCASIONAL SURGEON AND THE OCCASIONAL STATISTICIAN.

Sir: I see "by the paper" that 26% of the population attend the public hospitals (*per annum* ?).

Could I be informed if I am correct in surmising that the figures are drawn from "attendances" in which one person may be represented many times? If so, could we use this as a text for hearing much less of the harm done in removing an appendix without a higher degree and much more about the harm done by loose conclusions, based on statistics, appearing not only in the medical Press and calculated to have much wider effects on general progress, especially if emanating from an authority. Surely such should not be printed without supervision by a professional statistician.

Yours, etc.,

"Rookford."

March 5, 1937.

LABORATORY FACILITIES AT OBSTETRIC HOSPITALS IN SYDNEY.

Sir: Having read with great interest in The Medical Journal of Australia of March 6 the *résumé* of the chief addresses delivered at the first meeting of the National Health and Medical Research Council, I should like to comment on one aspect of these, from the point of view of one interested in obstetrics and gynæcology. Professor H. Dew is reported as emphasizing: (i) that the State hospitals were well equipped with laboratory facilities, and (ii) that such laboratory services as were needed for clinical research could be carried out at the better class general hospitals. One resolution adopted by the council reads: "The council does not consider that any new buildings are required, as the existing buildings available for research are adequate for all necessary purposes." No one denies the urgent need for research into many of the conditions associated with pregnancy, parturition and the puerperium. Although the outbursts of politicians, lay Press and women's associations, at times hysterical, are to be deprecated, nevertheless there is definite room for improvement in the mortality and morbidity that affect both mother and infant in the process of child-bearing. Organized clinical research at the larger maternity hospitals must play an important part in achieving any good result and, as Professor Dew points out, one of the necessities for clinical research is adequate laboratory service.

Now the laboratory facilities of the five largest maternity hospitals in the capital city of New South Wales are less than adequate, both structurally and in personnel, for what should be ordinary routine work.

1. At the Women's Hospital, Crown Street, there is one moderate-sized room in which to do the most varied types of routine laboratory work demanded by an institution

that treats over 4,000 in-patients annually. Opening directly from this room is a smaller one in which *post mortem* examinations are conducted. The work is done by a full-time pathologist and one technician (who also is the X ray technician) under the supervision of an honorary director of pathology.

2. The Royal Hospital for Women, an equally large institution, possesses somewhat more space, in the shape of a separate building with two work-rooms and a mortuary and *post mortem* room. The staff consists of a technician and a laboratory boy under the supervision of an honorary pathologist.

3. At Saint Margaret's Hospital for Women, Darlinghurst, there is no accommodation or equipment for laboratory service at all, and the work required is done by a pathologist in private practice, outside the hospital.

4. The South Sydney Women's Hospital is in even worse straits, and all pathological work required has to be sent to the Board of Health or to the nearest general hospital.

5. The Obstetric Department of the Royal North Shore Hospital is fortunately able to utilize the well designed and equipped laboratory of the general hospital—the endowment of one individual.

Except possibly at this last-mentioned hospital, which is primarily a general hospital, very little clinical research in obstetrics could be undertaken in Sydney without more accommodation and equipment. With the above-mentioned exception, it is doubtful whether any of these institutions could be "recognized by the council as adequately equipped and administered for the purposes of research" and so "registered as approved research institutions". It is fully agreed that "it would be a tragic waste of public money if any more endowment of bricks and mortar were encouraged" where buildings already exist, but there has not yet been any endowment of public or private money for adequate laboratory facilities at any maternity hospital in Sydney.

It is suggested not that the National Health and Medical Research Council should provide funds for this purpose, but rather that the unfortunate plight of the maternity hospitals should be recognized.

Yours, etc.,

JOHN CHESTERMAN.

135, Macquarie Street,
Sydney,
March 10, 1937.

THE REPATRIATION DEPARTMENT MEDICAL OFFICERS' ASSOCIATION.

SIR: In the report of the annual meeting of the Public Medical Officers' Association of New South Wales, published in your issue of February 27, there appears a paragraph stating:

> The Committee has been informed that the Repatriation Group of the Public Medical Officers' Association of Victoria contemplates forming a separate body registered under the Federal *Arbitration Act*. The repercussions of this action on our Repatriation Group are being watched.

The Executive Committee of the Repatriation Department Medical Officers' Association considers the above-quoted remarks may cause quite erroneous impressions.

Medical officers serving with the Repatriation Commission in Victoria have been instrumental in the formation of the Repatriation Department Medical Officers' Association, which was registered last year as an "Organization" under the Commonwealth *Conciliation and Arbitration Act* and the *Arbitration (Public Service) Act*.

It would not be possible for our Association to be registered as a "Union" under the former Act.

The staff regulation of the Repatriation Commission provides special facilities for the working of organizations of employees when the organizations are duly registered.

Our association hopes to work amicably with all other medical associations, and particularly with the British Medical Association, the influence of which has already been demonstrated in proceedings under the *Arbitration (Public Service) Act*.

Yours, etc.,

W. J. BEVERIDGE,
Honorary Secretary.

11, Staniland Avenue,
Malvern,
March 10, 1937.

Research.

THE WILLIAM GIBSON RESEARCH SCHOLARSHIP FOR MEDICAL WOMEN.

MISS MAUD MARGARET GIBSON has placed in the hands of the Royal Society of Medicine a sum of money sufficient to provide a scholarship of the yearly value of £292, in memory of her father, the late Mr. William Gibson, of Melbourne. The scholarship is awarded from time to time by the society to qualified medical women who are subjects of the British Empire, and is tenable for a period of two years, but may in special circumstances be extended to a third year. The next award will be made in June, 1937.

In choosing a scholar the society will be guided in its choice "either by research work already done by her, or by research work which she contemplates. The scholar shall be free to travel at her own will for the purpose of the research she has undertaken."

There is no competitive examination, nor need a thesis or other work for publication or otherwise be submitted. The society has power at any time to terminate the grant if it has reason to be dissatisfied with the work or conduct of the scholar.

Applications should be accompanied by a statement of professional training, degrees or diplomas, and of appointments, together with a schedule of the proposed research. Applications must be accompanied by testimonials, one as to academical or professional status, and one as to general character. Envelopes containing applications *et cetera* should be marked on top left-hand corner "William Gibson Research Scholarship", and should be addressed to Mr. G. R. Edwards, Secretary, Royal Society of Medicine, 1, Wimpole Street, London, W.1, and should be received not later than Tuesday, June 1, 1937.

Corrigendum.

OUR attention has been drawn by the Medical Department of the Oxford University Press to the fact that the diagrams appearing in an article by Sir Stanton Hicks on "The Interrelationship of the Sex Hormones", in the issue of December 26, 1936, at page 894, are taken from Professor Samson Wright's "Applied Physiology", pages 226 and 227. Professor Wright acknowledges his indebtedness to his colleagues, Dr. Inhofen and Dr. Lawson, for their assistance in the preparation of the original chart. We were not aware that these diagrams were copyrighted, and, while acknowledging their source, offer an apology to the Oxford University Press for our unintentional infringement of copyright.

Books Received.

CONQUEST OF GOITER, by E. O. Houda, M.D.; 1936. Tacoma: Conrad Printing Company. Foolscap 8vo, pp. 157, with illustrations. Price: $2.50.

PRINCIPLES OF DIAGNOSIS, PROGNOSIS AND TREATMENT: A TRILOGY, by R. Hutchison, M.D., LL.D., F.R.C.P.; Second Edition; 1936. Bristol: John Wright and Sons Limited. Crown 8vo, pp. 53. Price: 3s. 6d. net.

WEIGHT REDUCTION DIET AND DISHES, by E. E. Claxton, M.B., B.S., D.T.M. & H., with recipes by L. Burdekin; 1937. London: William Heinemann (Medical Books) Limited. Demy 8vo, pp. 202. Price: 8s. 6d. net.

PRACTICAL ORTHOPTICS IN THE TREATMENT OF SQUINT, by K. Lyle, M.A., M.D., M.Chir., M.R.C.P., F.R.C.S., and S. Jackson, with a foreword by C. L. Gimblett, M.A., M.D., M.R.C.P., F.R.C.S.; 1937. London: H. K. Lewis and Company Limited. Demy 8vo, pp. 228, with illustrations. Price: 12s. 6d. net.

SAFE CHILDBIRTH: THE THREE ESSENTIALS, by Kathleen O. Vaughan, M.B., with a foreword by H. A. Kelly, M.D., LL.D.; 1937. London: Baillière, Tindall and Cox. Medium 6mo, pp. 164, with 49 illustrations. Price: 7s. 6d. net.

FORTY FATHOMS DEEP, by Ion L. Idriess; 1937. Australia: Angus and Robertson Limited. Crown 8vo, pp. 353, with illustrations. Price: 6s. net.

KIDNEY PAIN: ITS CAUSATION AND TREATMENT, by J. L. Jona, D.Sc., M.D., M.S., F.R.A.C.S., M.C.O.G.; 1937. London: J. and A. Churchill Limited. Large Crown 8vo, pp 100, with 61 illustrations. Price: 7s. 6d. net.

RECENT ADVANCES IN ANÆSTHESIA AND ANALGESIA (INCLUDING OXYGEN THERAPY), by C. L. Hewer, M.B., B.S.; Second Edition; 1937. London: J. and A. Churchill Limited. Demy 8vo, pp. 292, with 113 illustrations. Price: 15s. net.

RECENT ADVANCES IN ORTHOPÆDIC SURGERY, by B. H. Burns, B.A., B.Ch., F.R.C.S., and V. H. Ellis, M.A., B.Ch., F.R.C.S.; 1937. London: J. and A. Churchill Limited. Demy 8vo, pp. 304, with 108 illustrations. Price: 15s. net.

PRACTICAL METHODS IN THE DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES FOR MEDICAL PRACTITIONERS AND STUDENTS, by D. Lees, D.S.O., M.A., M.B., D.P.H., F.R.C.S., F.R.C.P., F.R.S.E.; Third Edition, edited and revised by R. Lees, M.B., F.R.C.P.; 1937. Edinburgh: E. and S. Livingstone. Crown 8vo, pp. 618, with illustrations, including 8 coloured plates. Price: 15s. net.

THE ART OF TREATMENT, by W. R. Houston, A.M., M.D., F.A.C.P.; 1936. New York: The Macmillan Company; Australia: Angus and Robertson Limited. Medium 8vo, pp. 752. Price: 35s. net.

GENERAL PRACTICE SERIES. MEDICAL DIAGNOSIS: SOME CLINICAL ASPECTS, by S. L. Simpson, M.A., M.D., M.R.C.P.; 1937. London: H. K. Lewis and Company Limited. Demy 8vo, pp. 268. Price: 10s. 6d. net.

Diary for the Month.

MAR. 23.—New South Wales Branch, B.M.A.: Council.
MAR. 24.—Victorian Branch, B.M.A.: Council.
MAR. 25.—South Australian Branch, B.M.A.: Branch.
APR. 2.—Queensland Branch, B.M.A.: Branch.
APR. 6.—New South Wales Branch, B.M.A.: Organization and Science Committee.
APR. 7.—Victorian Branch, B.M.A.: Branch.
APR. 7.—Western Australian Branch, B.M.A.: Council.
APR. 8.—South Australian Branch, B.M.A.: Council.
APR. 9.—Queensland Branch, B.M.A.: Council.
APR. 13.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
APR. 20.—New South Wales Branch, B.M.A.: Ethics Committee.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser", pages xviii to xx.

DEPARTMENT OF INSPECTOR-GENERAL OF HOSPITALS, ADELAIDE, SOUTH AUSTRALIA: Junior Resident Medical Officer.
LIDCOMBE STATE HOSPITAL AND HOME, LIDCOMBE, NEW SOUTH WALES: Honorary Ear, Nose and Throat Surgeon.
MOTHERS' AND BABIES' HEALTH ASSOCIATION, INCORPORATED, ADELAIDE, SOUTH AUSTRALIA: Half-Time Medical Officer.
REPATRIATION COMMISSION, SYDNEY, NEW SOUTH WALES: Resident Medical Officer.
ROYAL NORTH SHORE HOSPITAL OF SYDNEY, NEW SOUTH WALES: Medical Superintendent.
ROYAL PRINCE ALFRED HOSPITAL, SYDNEY, NEW SOUTH WALES: Honorary Officers.
THE PUBLIC SERVICE BOARD, ADELAIDE, SOUTH AUSTRALIA: "Neale" Research Pathologist.
TOOWOOMBA HOSPITALS BOARD, TOOWOOMBA, QUEENSLAND: Junior Resident Medical Officer.

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MEDICAL PRACTITIONERS are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

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NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associate Friendly Societies' Medical Institute. Prosperpine District Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY Hospital are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
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WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.

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